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## DISEASES CAUSED BY BACTERIA AND FUNGI

COOPER, P. D. (1953). **The study of cell rupture in *Staphylococcus aureus*.**—*J. gen. Microbiol.* **9,** 199-206. [Author's summary copied *verbatim*.] 308

In order to prepare staphylococcal cell walls as free as possible from intact organisms yet with minimum chemical and mechanical degradation, a rapid turbidimetric method was developed to measure the proportion of staphylococci ruptured by shaking with glass beads. The assay took less than a minute, and was used to find the bacterial concentration and speed and time of shaking which gave the biggest yields of cell walls in the shortest time.

MURNANE, D. (1953). **Studies on bovine mastitis: the influence of milking-shed hygiene on the spread of infection by *Streptococcus agalactiae*.**—*Aust. vet. J.* **29,** 70-72. 309

The dipping of teat cups in sodium hypochlorite solution (1,250 p.p.m. free chlorine) considerably reduced the spread of infection and clinical mastitis. The teat cups had previously been deliberately contaminated with milk containing *Str. agalactiae*.—D. C. BLOOD.

RICHOU, R. (1953). De l'utilisation des antibiotiques dans le traitement des mammites des bovidés. [**Antibiotics in treatment of bovine mastitis.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 224-243. [English summary.] 310

A discussion on the treatment of bovine mastitis with antibiotics along conventional lines.—A.S.

MAUPOUMÉ, R. (1953). Mammite des femelles bovines: prophylaxie et thérapeutique. L'emploi des antibiotiques et leur répercussion sur la qualité des produits laitiers. [**Prophylaxis and therapy of bovine mastitis and effect of antibiotics on milk products.**]—*Bull. Off. int. Epiz.* **40,** May. pp. 208-223. [English summary.] 311

Antibiotics used in the treatment of bovine mastitis are secreted in the milk, and give rise to difficulties in the manufacture of butter and cheese. The author suggested that aqueous antibiotic solutions, which are rapidly eliminated, should be used, and that milk from cows treated with antibiotics should not be used for cheese processing for 3 or 4 days after milking. Antibiotics in the milk can be neutralized by the use of appropriate enzymes, such as penicillinase.—A.S.

AYNSLEY, L. H. (1953). **Sensitivity to penicillin of organisms isolated from cases of bovine mastitis. *In vitro* tests on a series of 500 cultures.**—*Vet. Rec.* **65,** 663-665. [Author's summary modified.] 312

Five hundred cultures of bacteria freshly isolated from cases of bovine mastitis were tested for penicillin resistance using a ditch-plate technique, the ditch containing 2 units per ml. of penicillin. Apart from the strains of *Bact. coli* 14 organisms, "mainly staphylococci," were found to exhibit a degree of resistance. When these 14 strains were tested by a serial dilution method the inhibiting concentration of penicillin fell between 0·02 and 5 units per ml. The results obtained by this survey show no evidence of increased resistance on the part of streptococci causing bovine mastitis as a result of the widespread use of penicillin in treatment, and no highly resistant staphylococci were isolated.

SHUBIN, V. F. (1953). [**Control of strangles (*Streptococcus equi* infection) with "ASD".**] —*Veterinariya, Moscow.* **30,** No. 9. pp. 24-26. [In Russian.] 313

An account of the use of "ASD" [*V.B.* 24, 571] for strangles, it is stated, with good results.—F.A.A.

FABER, V. (1953). **Anti-streptococcal-hyaluronidase. II. Turbidimetric determination of anti-streptococcal-hyaluronidase (ASH) in the sera**

**of normal individuals.**—*Acta med. scand.* **145,** 458-464. [In English.] **314**

The amount of anti-streptococcal hyaluronidase in the serum of persons, who had been free from acute infection with streptococci during the previous half year at least, was studied between the neo-natal period and old age. Low figures were obtained throughout. F. discussed the significance of the test in relation to rheumatic fever.—J. EDWARDS.

EDDS, G. T., ROEPKE, M. H. & BIETER, R. N. (1953). **Effect of certain drugs alone and in combination on micrococci isolated from the bovine udder.**—*Amer. J. vet. Res.* **14,** 355-361. **315**

Ten strains of coagulase-positive staphylococci, isolated from dairy cows with clinical symptoms of mastitis, tested *in vitro* by the broth turbidity method with various antibiotics alone or in combination, showed varying degrees of sensitivity to penicillin, streptomycin, aureomycin and terramycin. Combinations of penicillin and streptomycin, terramycin and streptomycin, and terramycin and aureomycin had a synergistic action. When sulphafurazole was added at a level of 50 μg. per ml. with penicillin, terramycin or aureomycin there was a great increase in activity against most of the strains, but when it was used with streptomycin an increased level of the latter was necessary to prevent visible growth.—F.E.W.

PATTISON, I. H. & SMITH, I. M. (1953). **The histology of experimental *Streptococcus dysgalactiae* mastitis in goats.**—*J. Path. Bact.* **66,** 247-250. [Authors' summary modified.] **316**

The histological changes that occur after infection of the mammary gland of goats with *Str. dysgalactiae* resemble closely those caused by *Str. agalactiae*. The authors drew a distinction between a mild (non-specific) and severe (specific) mastitis and suggested that this difference is dependent on whether or not a crisis occurs.

BRUNER, D. W. & TUCKER, E. W. (1953). **Methods for typing streptococci causing bovine mastitis.** — *Cornell Vet.* **43,** 574-576. **317**

An account of the preparation and use of antistreptococcal typing serum.

TERPSTRA, L. I. (1951). La stérilité des bovidés d'origine microbienne. **[Infectious sterility in cattle.]**—*Bull. Off. int. Epiz.* **36,** 370-385. [English summary.] **318**

T. stressed the importance of proving the pathological significance of organisms associated with infertility. For instance, cultures of cervical-vaginal flora injected into the genital tract of experimental cows proved to be harmless. A typical outbreak of infertility due to *V. fetus* was described. The cervical mucus agglutination test gave much higher titres than serum from the same cows. Infertility in herds using A.I. was investigated. No positive agglutination titres for *V. fetus* were found. Typical infection was established in experimental heifers by inseminating them with semen to which *V. fetus* cultures had been added.—F. L. M. DAWSON.

HUGHES, D. E. & GILMAN, H. L. (1953). **A satisfactory method for the culture of *Vibrio fetus*.**—*Cornell Vet.* **43,** 463-465. **319**

Semi-solid Bacto-thiol media, containing 0·5% agar is dispensed into culture tubes to a depth of 4 to 5 cm. Semen, preputial fluid or vaginal discharge is inoculated into the media to a depth of from 2 to 5 mm. After incubation at 37°C. in 10% $CO_2$ for 3 to 9 days the motile vibrios appear deep in the media.

—IAN NEWSAM.

KRYUCHKOV, I. I. (1953). **[Anthrax and wild animals.]**—*Veterinariya, Moscow.* **30,** No. 6. p. 36. [In Russian.] **320**

Anthrax appeared in 1952 in one of the sparsely populated northern parts of the U.S.S.R. hitherto free from the disease, both among domestic animals, including dogs, and among wild animals. Carcasses of wolves, hares and about 70 elk were found in the forests, the bacteriological examination of some proving anthrax as the cause of death. The factors regarded as responsible for the spread of the disease to wild animals were a sultry summer, heavy rains and unusually large swarms of insect vectors.—F.A.A.

DRUETT, H. A., HENDERSON, D. W., PACKMAN, L. & PEACOCK, S. (1953). **Studies on respiratory infection. The influence of particle size on respiratory infection with anthrax spores.** —*J. Hyg. Camb.* **51,** 359-371. [Abst. from authors' summary.] **321**

An account of studies to determine the role of particle size in the infectivity of anthrax spores. Clouds of homogeneous particles were produced. The authors gave the mortality-dosage curves for g. pigs and monkeys with clouds of various particle sizes. They gave data on the effect of time in the concentration-time relationship. The results were compared with those recorded by other workers on the relationship of particle size to respiratory retention.

Infectivity was highest with single-spore

clouds, falling off as particle size increased. Reasons were given for attributing this effect to difference in site of deposition of different sized particles.

HARPER, J. G. & MORTON, J. D. (1953). **The respiratory retention of bacterial aerosols: experiments with radioactive spores.**—*J. Hyg. Camb.* **51,** 372-385. [Abst. from authors' summary.] 322

A study of the distribution of inhaled bacterial aerosols in g. pigs, monkeys and mice, using *Bacillus subtilis* spores labelled with radiophosphorus. Particle sizes from about 1 to 12 $\mu$ were used.

In g. pigs the expected change of distribution with particle size was observed; the proportion retained in the head increased with increased particle size. The figures corresponded closely with those for man. Monkeys gave similar results but were more irregular.

The subsequent fate of the retained particles was in accord with what is known about ciliary removal.

[See also preceding abst.]

KELLER, H. (1952). Zusammenhang der Lebertuberkulose mit Leberegelbefall. [**Connexion between TB. of the liver and fascioliasis in cattle.**]—*Inaug. Diss., Munich.* pp. 44. 323

P.M. examination of 73 tuberculous cattle revealed a correlation between the presence of liver flukes and localization of tuberculous lesions in the liver. Of 41 tuberculous animals with liver flukes, 7 had TB. lesions in the liver; of 32 tuberculous animals without parasites only one had such lesions.—A.MAYR-HARTING.

STREL'CHENOK, K. G. (1953). [**Non-specificity of tuberculin eye test in cattle infested with *Fasciola* spp.**]—*Veterinariya, Moscow.* **30,** No. 6. p. 26. [In Russian.] 324

A note stating that three cows with clinical symptoms attributed to TB., and giving reactions to the tuberculin test, were all found to have liver fluke infestation. No TB. lesions were found at a P.M. examination, the exact details of which were not given. S. suggested that the liver flukes had sensitized the animals to tuberculin.—F.A.A.

AKTAN, F. (1952). Prüfung des Blutbildes, Pulses, der Körpertemperatur und der Hautdicke nach der intradermalen Tuberkulinisierung des Pferdes. [**Blood picture, pulse rate, body temperature and thickness of the skin reaction in horses after the intradermal tuberculin test.**] — *Inaug. Diss., Hanover.* pp. 40. 325

Tuberculin injected intradermally in the horse produces not only a well developed skin reaction in positive cases but also a rise in body temperature varying from 0·9° to 2·5°C., a slight increase in pulse rate and a marked increase of neutrophile leucocytes with corresponding decrease in lymphocytes.

—E. A. HIRSCH.

BLOCH, H. & NOLL, H. (1953). **Studies on the virulence of tubercle bacilli.**—*J. exp. Med.* **97,** 1-16. 326

When tubercle bacilli were grown in media containing up to 2·1% Tween 80 or 0·15 mg./ml. of thiosemicarbazone their virulence was reduced as judged by the average survival time in infection experiments in mice.

—D. LUKE.

MARKS, J. & JAMES, D. M. (1953). **The effect of tuberculin on sensitized and normal leucocytes.** — *J. Hyg. Camb.* **51,** 340-346. [Authors' summary modified.] 327

The authors demonstrated that the cells in exudates produced by the injection of tuberculin into serous cavities of sensitized animals are alive and not dead as claimed previously. Such cells consumed oxygen and glucose at the same rate as cells obtained similarly from normal animals, but moved somewhat less actively. Purified tuberculin had no specific effect on the respiration *in vitro* of macrophages or neutrophile leucocytes derived from sensitized animals.

SUTER, E. (1953). **Multiplication of tubercle bacilli within mononuclear phagocytes in tissue cultures derived from normal animals and animals vaccinated with BCG.**—*J. exp. Med.* **97,** 235-245. [Author's summary modified.] 328

When monocytes derived from normal g. pigs or rabbits were infected with tubercle bacilli and cultivated *in vitro,* the bacilli multiplied abundantly within the cytoplasm of these cells. By contrast, intracellular multiplication of the bacilli was retarded or completely inhibited within the monocytes of rabbits or g. pigs vaccinated with B.C.G. This inhibition of growth was observed with both virulent or attenuated strains of tubercle bacilli.

The ability of monocytes to inhibit bacillary proliferation was the same whether serum from a normal animal or from vaccinated animals was used in the tissue culture medium. Moreover, the serum of vaccinated animals did not inhibit multiplication of tubercle bacilli within monocytes derived from a normal animal.

The ability of g. pig monocytes to interfere with intracellular bacillary proliferation was first perceptible 8 days after vaccination.

Cedrangolo, F., Gioia, A. & Bagnulo, R. (1953). Un meccanismo enzimatico, per il quale si puo' abassare *in vivo* la tossicità dell'idrazide dell'ac. isonicotinico. [**An enzyme mechanism reducing the toxicity of isonicotinic acid hydrazide** *in vivo*.]—*Enzymologia.* **16,** 41-50. [In Italian. English summary.] 329

The authors injected isonicotinic acid hydrazide, alone or in combination with glutamic acid, intramuscularly into rats. The glutamic acid considerably reduced the toxicity of the drug, and the authors discussed a possible mechanism.—A.S.

Tucker, E. W. (1953). **Infection of the bovine udder with *Mycobacterium* species.**—*Cornell Vet.* **43,** 576-599. [Abst. from author's summary.] 330

An account of an outbreak of mastitis caused by a species of *Mycobacterium,* involving 32 of 101 cows in one unit of a large commercial dairy. Atypical tuberculin reactions had been observed in some cows in the herd some two years earlier and three of these cows which had subsequently given negative reactions were still in the herd.

When oily products were experimentally infused into quarters infected with the organism, the marked hypertrophy found in clinically affected cattle rapidly developed. [See also *V.B.* **23,** 342.] This is of extreme importance because most udder infusions are made with oily vehicles and an aseptic technique is frequently lacking.

This is the first report of this type of mastitis in the U.S.A. T. suggested that this infection might be of some importance in TB. eradication programmes.

I. Brygoo, E. R. (1953). Action du chloramphénicol sur le bacille de Whitmore. [**Action of chloramphenicol on *Pfeifferella whitmori*.**] —*Bull. Soc. Path. éxot.* **46,** 169-173. 331

II. Brygoo, E. R. (1953). Action de la néomycine sur le bacille de Whitmore. [**Action of neomycin on *Pfeifferella whitmori*.**]—*Ibid.* 216-221. 332

III. Brygoo, E. R. & Henry, E. (1953). Action *in vitro* de divers antibiotiques sur le bacille de Whitmore. [*In vitro* **action of antibiotics on *Pfeifferella whitmori*.**]—*Ibid.* 279-283. 333

I. The mean active *in vitro* concentrations of chloramphenicol against *Pf. whitmori* were 70 u./ml. (bacteriostatic) and 300 u./ml. (bactericidal). Dosage with 150 mg./kg. per day delayed the course of experimental infection in g. pigs, but did not prevent death.

II. The average *in vitro* bacteriostatic concentration of neomycin against *Pf. whitmori* was 6 u./ml. Doses of up to 25,000 u. per kg. had no significant effect on an experimental infection in g. pigs.

III. When tested against large inocula of *Pf. whitmori,* chloramphenicol proved to be the most active of seven antibiotics (neomycin, aureomycin and terramycin also had marked activity). Sulphonamides were not as active as reported by others. British Anti-Lewisite and *p*-amino salicylic acid were effective only in high concentrations, and a sulphone proved inactive. —G. P. Marshall.

Moulton, J. E., Rhode, E. R. & Wheat, J. D. (1953). **Erysipelatous arthritis in calves.** —*J. Amer. vet. med. Ass.* **123,** 335-340. [Authors' summary copied *verbatim*.] 334

Six out of 20 calves in a herd showed symptoms of lameness with swollen, painful joints. Two 8-month-old steer calves from the herd were observed clinically and showed tibiotarsal, stifle, and carpal joint enlargements. The joints were firm except near the union where increased synovial fluid produced fluctuation.

The lesions at autopsy were restricted to the joints which showed large amounts of fluid and marked proliferation of synovial membranes with villous growth. Articular cartilages exhibited extensive erosions. Ankylosis was not observed.

Microscopically, proliferative villi revealed diffuse and focal neutrophilic and mononuclear cell infiltrations. Especially prominent were focal collections of lymphocytes.

Bacteria from the hock joint in one case were morphologically and culturally similar to *Erysipelothrix rhusiopathiae.* The organism was further identified by mouse-protection tests.

Martin, G (1953). Zur Penicillin-Therapie des Schweinerotlaufes. [**Penicillin treatment of swine erysipelas.**]—*Wien. tierärztl. Mschr.* **40,** 339-345. [English, French and Italian summaries.] 335

All except 30 of 207 pigs with *E. rhusiopathiae* infection, treated i/m with soluble penicillin at a dosage of 200,000 units, were cured by a single injection, whilst the remainder required two or three. Antiserum was not used: M. suggested that it is unnecessary.—J. Edwards.

Wiidik, R. W. & Ehlers, T. (1953). Vergleichende Untersuchungen über die Rotlaufimmunität der Schweine nach Impfung mit dem schwedischen avirulenten Rotlaufimpfstoff und Rotlaufadsorbatimpfstoff. [**Swine**

**erysipelas immunization with an attenuated and with adsorbate vaccines.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 49-54. [In German. English and French summaries.] 336

Both an avirulent and an adsorbate vaccine conferred on pigs some immunity against swine erysipelas; the immunity conferred did not withstand a test endermal inoculation of culture. —A.S.

SHUMAN, R. D. (1953). **Experimental evaluation of culture and serum vaccination for the control of swine erysipelas. IV. Gilts vaccinated with culture and serum before breeding, and its immunizing effect on their offspring.**—*J. Amer. vet. med. Ass.* 123, 431-433. [Author's summary modified.] 337

Piglets born to gilts that had been vaccinated with culture and serum when mature, but before being bred, were immune to percutaneous infection up to and including the sixth week (45 days). Some protection was afforded up to the eighth week (58 days). Although based on a limited number of experimental animals, this suggests a method for protecting pigs against swine erysipelas from birth to the weaning period. Vaccination of mature gilts with culture and serum resulted in an immunity to percutaneous infection in their litters from 4 months of age (117 days) to at least 8 months (230 days).

YODER, W. D. & MERCHANT, I. A. (1953). **Antigenic typing of *Pasteurella multocida* by using chicken embryo vaccine in mice.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 109-111. 338

Formolized vaccines were prepared from three types of cultures of *Past. septica* after enhancement of virulence by passage in chick embryos. Mice were vaccinated with these and subsequently exposed to unknown strains the virulence of which was similarly enhanced. The type of four of the ten strains used was determined in this way.—D. LUKE.

GERRIETS, E. (1953). Antibiotica- und Chemotherapie bei einem Fall von Septicaemia anserum exsudativa. [**Treatment of exudative septicaemia in geese with penicillin and sulphathiazole.**] — *Berl. Münch. tierärztl. Wschr.* 66, 261-262. [English summary.] 339

An account of a recent small outbreak of a disease in geese resembling that described by Riemer (1904) and by McFadyean (1902) an account of which is given by Biester and Devries in their textbook Diseases of Poultry, 2nd Edit. (1948) pp. 386-387, under the name of "goose influenza".

The cause of the disease is in doubt. Gram-negative organisms have been isolated from cases by workers in Germany and have been described variously as *Bacillus septicaemiae anserum exsudativae, Shigella septicaemiae* and as *Haemophilus* spp.

The condition is characterized by exudation into the subcutaneous and submucous tissues, paralysis and inflammation of the air sacs.

In the outbreak studied by G., he failed to transmit infection by inoculation of heart blood and of the subcutaneous exudate into healthy geese. Gram-negative rods were observed microscopically and were said to resemble *Haemophilus*. Treatment with penicillin and sulphathiazole is said to have been effective.

—G. P. MARSHALL.

CLARA, I. (1953). Osservazioni sui moderni metodi di profilassi e terapie delle colibacillosi. [**Prophylaxis and treatment of *Bacterium coli* infection in calves (white scours).**] —*Atti Soc. ital. Sci. vet., Sanremo*, 1952. 6, pp. 398-403. [French and Spanish summaries.] 340

*Bact. coli* was isolated from the viscera in 21 of 87 and from the faeces in 73 of 104 calves, 2–4 days old, affected with scours. The administration *per os* of 200 ml. serum from normal cattle with 4 g. chloramphenicol, 6 g. phthalylsulphathiazole, together with niacin, twice daily for the first three days of life yielded good results. It was also useful in diarrhoea of piglets.—R.M.

EDWARDS, P. R. & MCWHORTER, A. C. (1953). **A new *Salmonella* type: *Salmonella berkeley*.** —*Cornell Vet.* 43, 572-574. [Abst. from authors' summary.] 341

The authors described a new serotype, *S. berkeley*, from fatal infections of turkey poults. It had the antigenic formula 43 : a-1,5.

NEEL, R., JORGENSEN, K., LE MINOR, L. & MACHOUN, A. (1953). Contribution à l'étude de *Salmonella dublin*. Nouvelles variétés biochimiques. Classification. [**Classification of new biochemical varieties of *S. dublin*.**]—*Ann. Inst. Pasteur.* 84, 410-419. 342

The authors studied 65 Iranian strains of *S. dublin*. The different varieties and neighbouring species of Group D were differentiated biochemically by their behaviour in:—media containing arabinose, dulcitol, or rhamnose;

Stern's fuchsin sulphite glycerol meat-extract medium, organic acid—or Simmons' media.
—E. MARSH JONES.

BERRY, L. J. & MITCHELL, R. B. (1953). **The effect of malonate on *Salmonella typhimurium* infection in mice.**—*Science*. **118**, 140-141. 343

The authors stated that injections of sodium malonate increased the susceptibility of mice to experimental infection with *S. typhi-murium*. The malonate alone was not lethal.
—E. A. GIBSON.

SEELEMAN, M. (1953). 12 Jahre Abortus-Bang-Bekämpfung. [**Twelve years of control of *Br. abortus* infection in cattle in Germany.**]—*Mh. VetMed.* **8**, 133-139. 344

An account on conventional lines of the control of *Br. abortus* infection in cattle.
—H. BEHRENS.

VAN DRIMMELEN, G. C. (1950). **A rapid test for the differential diagnosis of infected and vaccinated bovine reactors to the serum agglutination test for brucellosis.**—*S. Afr. J. Sci.* **46**, 205-207. 345

Milk from cows, one month after infection or 4 months after vaccination, is diluted up to 1 : 4 with normal milk. A drop of stained antigen is added and the mixture incubated at 37°C. for 40–50 min. Milk from the vaccinated animal never gave a violet cream ring in the highest dilution and milk from infected cows always produced a characteristic colour change in the layer of cream.—I. NEWSAM.

CLAPP, K. H. (1953). **Relationship between human infection with brucellosis and a heavily infected milk supply.**—*Med. J. Aust.* April 25th, 583-584. 346

Among 43 people exposed to repeated infection by drinking unboiled milk containing *Brucella abortus*, there were 4 doubtful cases of clinical or subclinical brucellosis.
—W. R. BETT.

GREGORY, T. S. (1953). **A comparison of the effects of intracaudal and subcutaneous vaccination of calves with *Brucella abortus*, Strain 19. III. Immunity in the third year after vaccination. IV. A general assessment of results three years after vaccination.**—*Aust. vet. J.* **29**, 98-103 & 117-121. [For previous parts, see *V.B.* **22**, 2407 & **23**, 361.] 347

I. Cattle which had been vaccinated as calves intracaudally or subcutaneously with *Br. abortus* Strain 19 vaccine were exposed to infection in the third year after vaccination. The severity of the challenge was indicated by the high abortion and infection rates in the control group. There was no difference between animals vaccinated intracaudally and those vaccinated subcutaneously, and the protection conferred was high but not complete (infection rates were 35% to 40%, as compared with 95% in the control group). There appeared to be no reduction in protection between the second and third years post-vaccination and it was concluded that those animals which are insufficiently protected become infected at the first severe challenge.

II. G. summarised the results of his previous work on this subject and concluded that intracaudal vaccination with *Br. abortus* Strain 19 confers equal protection to that afforded by subcutaneous vaccination.—D. C. BLOOD.

JELLISON, W. L., FISHEL, C. W. & CHEATUM, E. L. (1953). **Brucellosis in a moose,** *Alces americanus*.—*J. Wildlife Mgmt.* **17**, 217-218. 348

P.M. examination of a young moose revealed pericarditis and myocarditis. *Brucella abortus* was isolated from the pericardial and pleural fluids. Six out of 44 random blood samples from moose agglutinated *Br. abortus* completely at a titre of 1 : 40.—E. A. GIBSON.

HOSTY, T. S. & JOHNSON, M. B. (1953). **Routine methods for cultivation and isolation of *Brucella* in a public health laboratory.**—*Amer. J. publ. Hlth.* **43**, 30-35. 349

The authors recorded the results of 13 years' routine experience in the isolation of *Brucella* from human beings, and gave details of methods adopted.—A. H. LINTON.

MORTELMANS, J. & VERCRUYSSE, J. (1953). Sur une méthode pratique pour la conservation de sérum destiné au diagnostic de la brucellose. [**A practical method for preserving serum samples for the agglutination test for bovine brucellosis.**]—*Bull. Agric. Congo belge*. **44**, 779-786. [Flemish summary.] 350

The authors advocated the use of merthiolate (sodium-ethyl-mercuri-thio-salicylate) for increasing the keeping properties of cattle sera collected in the field and submitted to the laboratory for brucella agglutination tests.
—J.D.

CEDRO, V. C. F. (1952). Diferenciación de la Brucella suis por la prueba de la ureasa. [**Identification of *Brucella suis* by the urease test.**]—*Rev. Med. vet., B. Aires*. **34**, 81-84. [English and French conclusions.] 351

In confirmation of the work of HOYER [*V.B.* **21**, 40] and of PACHECO & DE MELLO

[*Ibid.* 664], C. found the urease test to be a rapid and simple means of differentiating *Br. suis* (20 strains) from *Br. abortus* (54 strains) and *Br. melitensis* (16 strains), and recommended that it be used alongside conventional methods.—G. P. MARSHALL.

McINTYRE, W. I. M. & SEILER, H. E. (1953). **Epidemiology of canicola fever.**—*J. Hyg., Camb.* **51,** 330-339. [Abst. from authors' summary.] 352

In an investigation into the incidence of canicola fever amongst owners of dogs infected with *L. canicola* visits were made to 46 households in which infected dogs lived. Altogether 137 household contacts were examined and blood samples from 99 of these persons were tested for agglutination against *L. canicola*. All the sera proved negative.

The authors discussed some of the difficulties in explaining the relationship between the disease in dogs and man. The results of the present survey and the experience with some reported cases of human canicola fever show that there is a great variation in the risk of infection to owners and others living in the same house with diseased dogs. They suggested that some other source of infection common to man and dog is possible.

It is recommended that in the light of present knowledge greater attention should be paid to the preventive aspect and that more propaganda should be directed to make dog owners aware of the possibilities of infection and of the importance of observing hygienic principles when handling dogs and particularly when dealing with dejecta.

HUMPHREYS, F. A., CAMPBELL, A. G. & SMITH, E. S. (1953). **Studies on leptospira infection in rodents and dogs in British Columbia.**—*Canad. J. comp. Med.* **17,** 206-212. 353

Leptospira were isolated from 15 of 68 Norway rats in the Fraser Valley, but not from 245 rats in other areas. Four were identified as *L. ballum* on the basis of cross-agglutination-lysis tests. Injection of hamsters with kidney and liver was the best method for isolation. Agglutination tests and examination of sections by the method described by Levaditi failed to reveal infected rats.—R. GWATKIN.

BRYAN, H. S., RHOADES, H. E. & WILLIGAN, D. A. (1953). **Studies on leptospirosis in domestic animals. II. Isolation of *Leptospira pomona* from aborted swine fetuses.**—*Vet. Med.* **48,** 438 & 442. [Abst. from authors' summary.] 354

*L. pomona* was isolated in g. pigs by inoculation of a mixture of liver and kidney from five aborted pig foetuses. The aborting sow gave a positive reaction to the agglutination-lysis test for *L. pomona* and a negative reaction to the brucella agglutination test. The herd was free from brucellosis. Leptospira had not previously been recorded from pig foetuses in the U.S.A.

BEAMER, P. D., HARDENBROOK, H., JR. & MORRILL, C. C. (1953). **Studies on leptospirosis in domesticated animals. I. Leptospirosis in sheep.**—*Vet. Med.* **48,** 365-366. 355

An account of an outbreak of leptospirosis associated with abortion in ewes. Leptospira of unstated species were recovered from stomach contents of aborted foetuses but were not demonstrated in ewes. Agglutination tests on 11 serum samples from affected ewes gave the following results:—two negative, 7 positive at 1:10, one at 1:100 and one at 1:1,000.

—E. A. HIRSCH.

DAFAALLA, E. N. & SOLTYS, M. A. (1953). **Agglutination of red cells by *Cl. welchii*.** [Correspondence.]—*Nature, Lond.* **172,** 38-39. 356

*Cl. welchii* types A, B, C, and D produced haemagglutination of sheep r.b.c. which could be inhibited by corresponding antisera. It was only possible to differentiate type A from the other types by haemagglutination-inhibition tests.—A. H. LINTON.

THOMSON, A. & BATTY, I. (1953). **The antigenic efficiency of pulpy kidney disease vaccines.**—*Vet. Rec.* **65,** 659-663. [Authors' summary modified.] 357

The immunity resulting from two doses of alum-precipitated activated toxoid given at an interval of not less than four weeks is greater both in degree and in duration than that resulting from the same procedure using anaculture, anaculture plus alum, or untreated alum-precipitated toxoid.

Although a higher level of immunity results from two 5 ml. doses of the alum-precipitated activated toxoid a very satisfactory state of immunity was achieved by two doses of 2 ml. even in sheep without any natural immunity.

In a naturally immune flock a high level of circulating antitoxin was still present 33 weeks after immunization.

In a previously well-immunized flock there is a clear indication that re-injection with an

alum-precipitated activated toxoid at six-monthly intervals will ensure that the animals always have a high level of circulating antitoxin.

KOCH, W. & KAPLAN, D. (1953). **A simple method for obtaining highly potent tetanus toxin.**—*J. Immunol.* **70**, 1-5. 358

The medium used (enzymatic casein hydrolysate, NaCl, $Na_2HPO_4$, $KH_2PO_4$) is cheap and simple to prepare, and the toxin obtained is 50% pure.—W. R. BETT.

CINADER, B. & WEITZ, B. (1953). **The interaction of tetanus toxin and antitoxin.**—*J. Hyg., Camb.* **51**, 293-310. [Authors' summary copied *verbatim*.] 359

Tetanus antitoxic horse sera were fractionated with sodium sulphate and by electrophoretic separation. The activity of the native serum and of fractions was determined *in vivo* in the mouse and guinea-pig and *in vitro* by the flocculation method. All the sera and fractions showed several zones of flocculation. The flocculation optimum corresponding to the toxin-antitoxin complex was selected by absorption of antitoxin to the floccules. The distribution of activity amongst the electrophoretic components of the native serum was computed from electrophoretic analysis, refractive increment measurements and assays of the activity of the electrophoretically pure fractions.

In all the sera examined the antitoxin was associated with both $\beta$- and $\gamma$-globulin. The $\beta$-globulin antitoxin has a shorter flocculation time and a higher *in vivo / in vitro* ratio than $\gamma$-globulin. The *in vivo/in vitro* ratio of $\gamma$-globulin was two to three times that of $\beta$-globulin antitoxin, its exact value depending on the toxin concentration against which the antitoxin was measured. The avidity of $\gamma$-globulin antitoxin was greater than that of $\beta$-globulin antitoxin judged by two independent " dilution " tests, namely a comparison of the mouse unitage using two concentrations of toxin and a comparison of the values obtained with one concentration of toxin in the mouse and in the guinea pig. The *in vivo* values of the various antitoxins varied with the toxin employed in the test.

During the first course of immunization in a horse the $\gamma$-globulin antitoxin rose to a constant value; $\beta$-globulin antitoxin increased to a still higher value later in the course. The avidity of the serum as measured by the two " dilution " ratios, also increased during immunization.

STONE, J. L. (1953). **The effect of lysozyme on the production of tetanus toxin. II. Mouse M.L.D.**—*Yale J. Biol. Med.* **25**, 239-244. 360

Lysozyme markedly enhanced the toxicity, measured as mouse m.l.d., of cultures of *Cl. tetani* during the first three days' growth only.
—W. R. BETT.

MOBERG, K. (1953). Ueber die Feststellung und Bekämpfung des Botulismus beim Nerz in Schweden. **[Botulism in mink.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 62-64. [In German. English and French summaries.] 361

In the last 3 years botulinus toxin type C has caused 21 outbreaks of food poisoning in mink in Sweden. M. found that botulinus toxoid type C, adsorbed on aluminium hydroxide, conferred a satisfactory active immunity, and no cases were reported from 250 farms where immunization had been carried out.

G. pigs. immunized with a combined vaccine containing immune serum and absorbate vaccine developed an active immunity, but the method remains to be tested in mink.—A.S.

FORSYTH, B. A. (1953). **The experimental treatment of contagious footrot in sheep.**—*Aust. vet. J.* **29**, 73-74. 362

Sulphamethazine (1 g./10–15 lb. body wt.) administered intravenously, intramuscularly, or *per os*, and penicillin (300,000 units procaine penicillin) administered intramuscularly, had no apparent beneficial effect in sheep naturally and artificially infected with foot rot.
—D. C. BLOOD.

MCKAY, K. A. & CARTER, G. R. (1953). **Some observations on the isolation, cultivation and variation of *Spherophorus necrophorus* associated with infectious atrophic rhinitis, liver abscesses and necrotic enteritis.**—*Canad. J. comp. Med.* **17**, 299-304. 363

Strains of *Fusiformis necrophorus* from infectious atrophic rhinitis, liver abscesses and necrotic enteritis in swine differed in their capacity to grow on artificial media. Cultures in the bacillary phase were usually recovered where there was marked tissue damage and necrosis. In rhinitis of swine, L forms were in most instances those of *F. necrophorus*. Work in progress suggests that atrophic rhinitis of swine cannot be produced with regularity employing only L forms. Rhinitis developed in piglets when a suspension of subcutaneous tissue from rabbits infected with this organism was injected intranasally.—R. GWATKIN.

ANON. (1952). **Report of committee on medical and veterinary mycopathology.**—*Int. Bull. bact. Nom. Taxon.* **2**, 143-150. 364

One of the activities of the Committee on Medical and Veterinary Mycopathology of the International Association of Microbiologists is to prepare a list of names of fungi pathogenic for animals and man which could be recommended for international use. This report includes a first tentative list of such names for 36 pathogenic fungi. All the names of interest to veterinary workers are the same as those in the British list [*Memor. med. Res. Coun.*, No. 23, 1949 (See *V.B.* **21**, 1647)].—G. C. AINSWORTH.

EMMONS, C. W. (1951). **The isolation from soil of fungi which cause disease in man.**—*Trans. N.Y. Acad. Sci.* **14**, 51-54. 365

When it is recalled that most systemic mycoses of man and of animals are not contagious the need for some non-animal reservoir of infection is apparent. The soil has long been considered as a possible reservoir but until the last few years pathogenic fungi have rarely been isolated from this source. Recently a number of pathogenic fungi have been recorded from soil in North America and elsewhere. These include *Histoplasma capsulatum, Cryptococcus neoformans, Nocardia asteroides, Aspergillus fumigatus, Sporotrichum schencki,* and *Coccidioides immitis*. It thus seems probable that animals and man are subject to the same hazard of infection from soil and in this well-documented review this conclusion is discussed against a broad epidemiological background.
—G. C. AINSWORTH.

CORDY, D. R. & HOOP, J. D. (1953). **Coccidioidomycosis of the skeleton in a dog.**—*N. Amer. Vet.* **34**, 44-46. 366

Histological examination of lesions in the mandible and radius of a one-year-old dog revealed infiltration by macrophages and other mononuclear leucocytes, with periosteal ossification and some fibrosis, with spores of *C. immitis* scattered sparsely throughout.
—I. W. JENNINGS.

MORQUER, R., PUGET, E. & BAZEX, A. (1953). Sur un nouvel agent de blastomycose chez le chien. **[A new blastomycotic agent in the dog.]**—*C. R. Acad. Sci. Paris.* **236**, 546-548. 367

An account of a generalized and fatal infection of the connective tissue in a dog, originating from an interdigital wound and spreading *via* the lymphatics and the blood stream to other sites. A pseudo-tumorous mass obtained by biopsy showed firm white granules from which a mycelial yeast was isolated, which in malt media appeared as ovoid to ovoid-spherical cells 4·2 – 7·2 x 5·8 – 8·2 (9) $\mu$ and which fermented glucose, saccharose, maltose, and galactose but failed to utilize nitrates. The authors proposed to erect a new species under the name *Candida pseudotumeralis*.
—G. C. AINSWORTH.

AINSWORTH, G. C. (1951). **Presidential address. A century of medical and veterinary mycology in Britain.**—*Trans. Brit. mycol. Soc.* **34**, 1-16. 368

In the course of this historical survey the author traced the study of animal mycoses in Britain from an eighteenth century record of "Salmon disease" (*Saprolegnia* sp.) to the outbreak of epizootic lymphangitis (*Histoplasma farciminosum*) which followed the return of troops from the Boer War. He also drew attention to dermatomycoses and aspergillosis in animals. The whole paper is well documented.
—P. K. C. AUSTWICK.

BLANK, F. (1953). **Ringworm of cattle due to *Trichophyton discoides* and its transmission to man.**—*Canad. J. comp. Med.* **17**, 277-281. 369

An account of ringworm due to *T. discoides* in man, contracted from cattle.—R. GWATKIN.

JILLSON, O. F. & BUCKLEY, W. R. (1951). **Fungous disease in man acquired from cattle and horses (due to *Trichophyton faviforme*).**—*New Engl. J. Mde.* **246**, 996-999. 370

The infection of man by the cattle ringworm fungus, *T. faviforme* [*T. verrucosum*], after contact with diseased cattle and horses is of frequent occurrence and in this well-illustrated article the authors describe the symptomatology of the condition. They distinguish four clinical types (typical ringworm patches but with less tendency to central clearing, agminate folliculitis, kerion, and granuloma of Majocchi) and state that trauma is usually the precipitating factor. Because of the marked local allergic response the disease is usually self-limiting in 4–8 weeks and the therapy advocated is mainly directed towards stimulating the allergic reaction.—G. C. AINSWORTH.

MENGES, R. W., LARSH, H. W. & HABERMANN, R. T. (1953). **Canine actinomycosis. A report of two cases.**—*J. Amer. vet. med. Ass.* **122**, 73-78. 371

The authors gave a brief but fully documented account of the incidence of canine

actinomycosis, and described two cases from Ohio and Michigan, respectively. The first was a 4–5-year-old male which died after an illness of 4–5 months in spite of antibiotic therapy. P.M. examination revealed pulmonary actinomycosis and an organism identified as *Actinomyces bovis* was isolated from lung tissue. The second, a 2–5-year-old spayed bitch, had a distended abdomen a week before death. P.M. examination revealed an inflammation of the omentum which contained two tumorous masses—one elliptical 15 × 5 cm. the other spherical, 2·5 cm. in diam. Histological examination of these tumours revealed granules of Gram-positive filaments which justified a diagnosis of actinomycosis.—G. C. AINSWORTH.

CHRISTISON, I. B. & CONANT, N. F. (1953). **Antifungal activity of some aromatic diamidines.**—*J. Lab. clin. Med.* 42, 638-640. [Abst. from authors' summary.] 372

The authors demonstrated selective *in vitro* antifungal activity of stilbamidine diisethionate, propamidine isethionate, pentamidine and phenamidine against *Blastomyces dermatitidis*, *B. brasiliensis*, *Cryptococcus neoformans*, *Histoplasma capsulatum*, and *Candida albicans*. The addition of serum to the medium did not interfere with the activity of the compounds but, rather, enhanced the activity of phenamidine against *C. neoformans*.

EVELETH, D. F., GOLDSBY, A. I., BOLIN, F. M., HOLM, G. C. & TURN, J. (1953). **Epizoology of vibriosis and listeriosis of sheep and cattle.**—*Vet. Med.* 48, 321-323. 373

Case reports showed that *Erysipelothrix* (*Listeria*) *monocytogenes* infection in 46 flocks of sheep was due, in each instance, to the introduction of infected animals. The source of infection in 5 herds of cattle was not positively established.

Similar reports showed that bovine and ovine abortion due to *Vibrio fetus* follows the introduction of new animals into herds and flocks.—IAN NEWSAM.

DIAS LOPES, M. X. (1953). Poder bactericida do leite após ordenha. **[Bactericidal action of milk.]**—*Rev. milit. rem. Vet. Rio de J.* 12, 111-119. [English summary.] 374

A discussion of the bacteriostatic properties of fresh milk. L. described experiments demonstrating that cooling the milk to 5°C. lessened this action, while maintaining a temperature of 27°C. enhanced it.—A.S.

SIMONNET, H. & LE BARS, H. (1953). Rôle des micro-organismes du tube digestif chez les herbivores. **[Role of bacteria in the digestive tract of herbivores.]**—*Rec. Méd. vét.* 129, 401-423. 375

A review of published literature.—D. LUKE.

HUHTANEN, C. N. & GALL, L. S. (1953). **Rumen organisms. I. Curved rods and a related rod type. II. Two lactate utilizers and six miscellaneous types.**—*J. Bact.* 65, 548-553 & 554-559. [Absts. from authors' summaries.] 376

I. The authors described 9 types of rumen organisms found repeatedly in large numbers in the rumen of adult animals in several widely separated locations. These were divided into three main morphological groups: large curved rods, tiny curved rods, and a straight rod. The two groups of curved rods were subdivided further on the basis of physiological characteristics determined by a screen test.

All the organisms were non-spore-forming, obligate anaerobic rods which attacked fibre producing the short-chain fatty acids, propionic, butyric, and acetic, and lactic acid as the main end products. They discussed growth stimulatory factors or requirements such as a source of carbon dioxide and starch or dextrin. They postulated that these organisms play an important role in roughage digestion in the ruminant.

II. Eight further types of rumen organisms were described, including two lactate utilizers and six miscellaneous types.

The authors pointed out the peculiar starch fermentation pattern of two of these organisms; they discussed the possible role of six of these bacteria in the digestion of the food of ruminants.

GUTIERREZ, J. (1953). **Numbers and characteristics of lactate utilizing organisms in the rumen of cattle.**—*J. Bact.* 66, 123-128. [Abst. from author's summary.] 377

Twenty-four strains of propionic acid producing bacteria were isolated from the rumen of cattle, 7 strains were maintained in pure culture from different types of hay, and 4 were recovered from soil samples. They resembled *Propionibacterium acnes;* if the description of this organism were modified to include lactate utilization the resemblance would be very close.

The numbers found in soil suggested that these organisms are widespread in nature, and the relatively large numbers in hay indicated that hay may be a particularly favourable habitat. The organisms grew rapidly at the expense of constituents in hay and grain and produced

considerable amounts of acetic and propionic acids in cultures. The large numbers and consistent isolation of these bacteria from the rumen fluid of cattle, suggested that they take an active part in the formation of propionic and acetic acids in the rumen, though the occurrence of such large numbers in hay makes it questionable whether the rumen is the site of most active growth.

HEALD, P. J., KROGH, N., MANN, S. O., APPLEBY, J. C., MASSON, F. M. & OXFORD, A. E. (1953). **A method for direct viable counts of the facultatively anaerobic microflora in the rumen of a sheep maintained on a hay diet.** —*J. gen. Microbiol.* **9**, 207-215. [Authors' summary modified.] **378**

By direct viable counts in deep cultures in a basal nutrient agar, consisting of buffered and very highly clarified rumen liquor, supplemented only with vitamin-free acid hydrolysate of casein, tryptophan, a fermentable carbohydrate and agar, the crude wet rumen contents of a hay-fed sheep were found to contain a population of about $10^8$ viable and facultatively anaerobic bacteria per g., mostly Gram-positive cocci capable of fermenting a wide range of soluble carbohydrates including starch and inulin but not mannitol. The mannitol-fermenting population was of the order of $10^6$ organisms per g., consisting mostly of Gram-negative rods, including coliform bacteria. Addition of reducing substances such as sodium sulphide or mercaptoacetate (thioglycollate) to the basal agar had little or no effect in increasing the counts. An extract of hay made with cleared and sterile rumen liquor did not yield the typical rumen streptococcal flora when counted by this method in raffinose + rumen liquor nutrient agar.

GERHARDT, P. MACGREGOR, D. R., MARR, A. G., OLSEN, C. B. & WILSON, J. B. (1953). **The metabolism of brucellae: the role of cellular permeability.**—*J. Bact.* **65**, 581-586. **379**

The authors studied a number of chemical and physical processes which they believed to be capable of increasing the permeability of *Brucella abortus* to metabolites. The oxidation of various metabolites and the inhibition by malonate of the metabolism of succinate were used as test reactions. They concluded that the results supplied reasonable, although indirect, proof that permeability is a limiting factor in such reactions.—E. A. GIBSON.

*See also abstr.* **543** (book, diseases of poultry); **544** (equine periodic ophthalmia); **651-653** (report, India).

## DISEASES CAUSED BY PROTOZOAN PARASITES

FIENNES, R. N. T. W. (1953). **The cattle trypanosomiases—experiments on the maintenance of cattle in tsetse-infested country by means of drug prophylaxis.**—*Brit. vet. J.* **109**, 473-479. [Author's summary modified.] **380**

F. described experiments in which antrycide and dimidium were used to protect cattle against trypanosomiasis, when exposed to tsetse flies in a heavily infested area. The majority of cattle died of trypanosomiasis, but a proportion survived until killed after 16–20 months, although health was impaired. The dimidium was given at regular intervals, but the antrycide only after infection was diagnosed and then solely on the ground of clinical conditions.

HOARE, C. A. (1953). ***Trypanosoma rangeli*, the second American trypanosome of man [and dog] and its affinities.**—*Trans. R. Soc. trop. Med. Hyg.* **47**, 271-272. **381**

*T. rangeli* resembles the cattle trypanosome, *T. theileri* and the sheep trypanosome, *T. melophagium*. It produces symptomless infections in man in South and Central America and occurs naturally in the dog, the probable reservoir host. Transmission is by contamination with faeces of the bug, *Rhodnius prolixus*. —S. F. M. DAVIES.

DESOWITZ, R. S. & WATSON, H. J. C. (1953). **The maintenance of a strain of *Trypanosoma simiae* in rabbits: the effect of splenectomy on the course of infection.**—*Ann. trop. Med. Parasit.* **47**, 324-334. [Authors' summary modified.] **382**

In two domestic pigs infected with *T. simiae* by the bite of wild *Glossina morsitans* obtained from an area where wart-hog are numerous, trypanosomes were found in the blood-stream five days later. One pig died on the eighth day, and the other on the ninth.

A sheep inoculated with the blood of one of these pigs had a scanty parasitaemia for 11 days, after which no parasites were observed. G. pigs, rats and mice were completely refractory to infection after inoculation of heavily infected pig's blood, but rabbits were susceptible. The strain of *T. simiae* has now been maintained for 17 serial subpassages in rabbits.

There is extreme variation in susceptibility from rabbit to rabbit, some rabbits remaining completely refractory, while others die of the infection, with a very heavy parasitaemia. Relapses were observed in all rabbit infections. in splenectomized rabbits consistently lethal infections with concomitant high parasitaemia are produced.

An alteration in virulence for the pig was noted after the strain had been subpassaged through rabbits a number of times. Although the pig ultimately died from the infection, the course of infection was much longer than in pigs infected by the bite of naturally infected tsetse.

The authors described the morphology of *T. simiae*, as seen in pigs and rabbits.

UNSWORTH, K (1953). **Studies on *Trypanosoma vivax*. V.—The maintenance of a strain in mice, with observations on the effects of splenectomy.**—*Ann. trop. Med. Parasit.* **47,** 232-239. 383

A strain of *T. vivax* (Toro strain) isolated from a naturally infected horse, and subsequently subpassaged through a series of four sheep and one ox, is capable of infecting mice by direct inoculation of blood from an infected ox. In normal mice infection with this strain could not be maintained beyond the fifth subpassage, or beyond the seventh when supplementary inoculations of bovine blood were given; but in splenectomized mice it could be maintained for 13 subpassages even without such supplementary inoculations.

The infections obtained in splenectomized mice were superior in intensity and duration, and in liability to relapse.—F.E.W.

I. ALEXANDER, G. I. (1953). **An outbreak of bovine trichomoniasis in Queensland and its control.**—*Aust. vet. J.* **29,** 61-66. 384

II. SUTHERLAND, A. K., SIMMONDS, G. C. & BELL, A. T. (1953). **An outbreak of bovine trichomoniasis. Part 2: diagnosis.**—*Ibid.* 67-69. 385

I. A herd with a serious infertility problem was found to be infected with *Trichomonas foetus*. Artificial insemination from a virgin bull, combined with sexual rest of all cows for three months was successful in controlling the disease. The practical difficulty of inseminating heifers was encountered.

II. A detailed account of the methods used in isolating trichomonads from the cows and bull, referred to in the preceding abst.

—D. C. BLOOD.

MCGREGOR, J. K. (1953). **Preliminary observations on the use of certain nitrofuran compounds in the control of enterohepatitis (blackhead) in turkeys.**—*J. Amer. vet. med. Ass.* **122,** 312-314. 386

Six nitrofuran compounds were tested in experimentally induced enterohepatitis. Two of these showed some prophylactic and therapeutic action.—D. LUKE.

HORTON SMITH, C. (1953). **The chemotherapy of coccidiosis and blackhead.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 409-413. [In English. French and German summaries.] 387

There are two clearly defined types of coccidiosis in poultry, an acute epidemic type, and a less acute type.

The author discussed the chemotherapy of both types of the disease, emphasizing the value of certain sulphonamides and of nitrofurazone. The latter was of particular preventive and curative value in the treatment of blackhead in turkeys.—A.S.

GORDON, R. F., CHUBB, L. G. & STACEY, C. G. (1953). **Nitrofurazone in poultry rations.**—*Vet. Rec.* **65,** 575-576. 388

The body weight gain and subsequent egg production of 30 pullets given 0·011% nitrofurazone in the mash from one day to 16 weeks of age were similar to those of controls, but hatchability was slightly lower.—W. H. PARR.

CHRISTIANSEN, M. (1952). Nyrecoccidiose hos vildtlevende andefugle (Anseriformes). Eimeria somateriae n.sp. hos ederfugl (Somateria mollissima (L)). **[Renal coccidiosis in wild geese, swans and ducks. *Eimeria somateriae* n.sp. in the duck (*Somateria mollissima*).]**—*Nord. VetMed.* **4,** 1173-1191. [In Danish. English and German summaries.] 389

A general account of renal coccidiosis in wild geese, swans and ducks. All of 12 greylag goslings, all of 4 young mute swans and 20 of the 21 common eider ducks examined were found to be infected. A coccidium deviating markedly from *E. truncata* was frequently found, and named *E. somateriae*, n.sp. The oocysts were elliptical, sometimes asymmetrical, and one end (with the micropyle) drawn out like the neck of a bottle. C. gave measurements of the oocyst. He described the histopathology of the condition.—R. B. HOLCOMBE.

GRESEV, M. A. & KOPTEV. (1953). **[Use of trypanblue in coccidiosis of chicks.]**—*Veter-*

*inariya, Moscow.* 30, No. 7. p. 51. [In Russian.] 390

After the loss of about 2,000 chicks from coccidiosis the authors claimed to have stopped further cases among over 26,000 chicks by adding trypanblue to the drinking water in solution of 1·0–1·2 in 1,000 for 7 days. For chickens over 2 months old the recommended proportion was 2:1,000. The authors suggested that trypanblue would be as effective in cattle and rabbits. A note by the editor of *Veterinariya* suggests that this claim should be verified by practising veterinarians.—F.A.A.

Shmulevich, A. I. (1953). **[Control of *Babesia bovis* infection with " thiargen ".]**—*Veterinariya, Moscow.* 30, No. 7. pp. 26-27. [In Russian.] 391

S. treated 241 cattle with *B. bovis* infection by i/v injection of 0·001 g./kg. live wt. of " thiagen " (pentathiosulphate argenate of sodium) in 1–2% concentration of water. Temperature began to fall 18 hours later and was normal after 36 hours; Urine cleared after 20 hours in 44% of animals and in 85% after 72 hours. Parasites disappeared from the blood after 24–48 hours and lactation was restored. All but 2 recovered.

Of 104 cattle treated with "haemosporidin" and 103 treated with "albergin" [composition of these drugs not given] 102 and 100 respectively recovered.—F.A.A.

Sergent, E. (1953). Piroplasmoses bovines **[Anaplasmosis.]** — *Arch. Inst. Pasteur, Algér.* 31, 129-130. 392

*Anaplasma centrale* was used to evoke premunition of cows in Algeria where *A. marginale* is rife. Between 1935 and 1943, 25,000 successful inoculations were performed. In lactating cows, a fall in milk yield occurs and inoculation of heifers is recommended.

—D. Poynter.

Foote, L. E. & Wulf, M. (1952). **Anaplasmosis carrier infection destroyed with aureomycin.**—*N. Amer. Vet.* 33, 406-408. 393

One cow with peracute anaplasmosis and two carriers received from 27·5 g. to 47·5 g. aureomycin intravenously in repeated doses. The first cow recovered, and the blood of all three proved non-infective for susceptible splenectomized calves.—M. L. Clarke.

Coutelen, F., Biguet, J., Doby, J.-M. & Deblock, S. (1953). Le problème des toxoplasmoses aviaires. Réceptivité variable de quelques oiseaux à une souche humaine de toxoplasmes. **[Avian toxoplasmoses. Varying susceptibility of birds to a human strain of the organism.]**—*Ann. Parasit. hum. comp.* 28, 129-156. 394

An experimental observation of the varying susceptibility of the domestic pigeon to a known human strain of *Toxoplasma*. The authors discussed the various organisms encountered in birds which may be confused with toxoplasms: the exo-erythrocytic stages of plasmodia, the merozoites of avian coccidia, and the undetermined ' X ' bodies.—S. F. M. Davies.

Hellbrügge, T. F., Dahme, E. & Hellbrügge, F. K. (1953). Tierexperimentelle Beobachtungen zur diaplazentaren Infektion der Toxoplasmen. **[Transplacental *Toxoplasma* infection in rats.]**—*Z. Tropenmed. u. Parasit.* 4, 312-322. [Abst. from English summary.] 395

Pregnant rats were infected with *T. gondii* in order to study the transplacental migration of toxoplasms. Parasites were found in the foetal circulation 48 hours after massive intravenous injection of the dams, while histological examination of the placental tissue failed to reveal lesions. Transplacental toxoplasmosis of the foetus was also observed in rats which had been infected 5 months previously and which had negative blood findings.

Keilin, D. & Ryley, J. F. (1953). **Haemoglobin in protozoa.** [Correspondence.]—*Nature, Lond.* 172, 451. 396

The authors reported the presence of haemoglobin in the ciliate *Tetrahymena* (*Glaucoma*) *pyriformis* and estimated the levels of haemoglobin in this species and in *Paramecium caudatum*. It is suggested that haemoglobin may have a wider distributioin in protozoa than hitherto suspected.—D. Poynter.

*See also abstr.* 543 (book, diseases of poultry); 648-650 (reports, Lister Institute).

## DISEASES CAUSED BY VIRUSES AND RICKETTSIA

Gorban', N. I. (1953). **[Some factors in the spread of foot and mouth disease.]**—*Veterinariya, Moscow.* 30, No. 7. pp. 22-24. [In Russian.] 397

Outbreaks of F. & M. disease in young stock were traced to infected milk products supplied as feed by a butter factory and by a milk depot. One outbreak was traced to a stream flowing from an infected farm and several others to a slaughterhouse. G. recommended

that the present statutory quarantine period for farms and stock be extended by another 3 months and additional hygienic measures taken, viz thermal disinfection of manure and covering it with not less than 10 cm. of soil, pasteurizing the milk and periodically disinfecting all buildings, equipment and the ground around the premises.—F.A.A.

DOBROKHOTOV, A. M. (1953). [**Problems of foot and mouth disease. (Summary of the 39th plenary session of the veterinary section of the U.S.S.R. Lenin Agricultural Academy.)**]—*Veterinariya, Moscow.* **30,** No. 7. pp. 60-63. [In Russian.] 398

Held on April 20th–22nd, 1953, this session dealt with the F. & M. disease and was attended by about 200 veterinarians. Over 20 papers were read and discussed, the main aspects being the biology of the virus, therapy and prophylaxis, hygiene and the disinfection of infected skins in the leather industry. The conference recommended that quarantine and disinfection should be coupled with vaccination. Regarding research it was urged that this should be intensified and every aspect of the disease dealt with, while any promising discovery should be quickly brought into practice.—F.A.A.

BONDARETZ, P. P. (1953). [**Some characteristics of foot and mouth disease in cattle.**]—*Veterinariya, Moscow.* **30,** No. 6. pp. 22-26. [In Russian.] 399

A general note on the course of F. & M. disease and its effects on cattle of various ages on a farm where a vaccine proved useless. Two parts of tar mixed with one of cod-liver oil smeared on the feet and a 2% solution of acetic acid used as a mouth wash had a beneficial effect.—F.A.A.

SCHNEIDER, B. (1953). Über weitere serologische A-Varianten des Maul- und Klauenseuchevirus. [**Serological variants of type O (German type A) F. & M. disease virus.**]—*Berl. Münch. tierärztl. Wschr.* **66,** 290-292. [English summary.] 400

Further work on the serological differentiation of F. & M. disease variants revealed the existence of nine serological variants of type O including one Brazilian and two Mexican strains. Each variant, if used as an antigen for inoculation can provide a complete immunity only against the homologous variant.

—A. MAYR-HARTING.

NAGEL, H. C. (1952). El comportamiento del virus aftoso en animales lactantes de diferentes especies. [**Foot and mouth disease infection of unweaned animals of various species.**]—*Gac. vet., B. Aires.* **14,** 52-59. [English and German summaries.] 401

N. confirmed that unweaned mice and rats are suitable for the passage of F. & M. disease virus. Continued passage resulted in no loss of virulence or specificity. Unweaned pigs and g. pigs were less suitable, but fairly high titres of virus were found in rabbitis and cats. N. also adapted the virus of vesicular stomatitis to unweaned mice.—I. W. JENNINGS.

NAGEL, H. C. & PETERMANN, H. G. (1952). El comportamiento del virus aftoso en el embrión de pollo. [**Behaviour of the foot and mouth disease virus in the chick embryo.**]—*Gac. vet., B. Aires.* **14,** 73-78. 402

In experiments with the O and A types, the authors found that it was possible to cultivate F. & M. disease virus in chick embryos, only by using strains with a very marked affinity for g. pig heart muscle.—I. W. JENNINGS.

THOMAS, J. A., BOULIGNAT, C., FARGES, J. & CAUCHY, L. (1953). Le virus aphteux de culture in vivo sur embryome spécifique et sélectif, et la vaccination antiaphteuse. [**Cultivation of foot and mouth disease virus *in vivo* and vaccination against F. & M. disease.**]—*C. R. Acad. Sci. Paris.* **236,** 758-760. 403

An account of further work on the mass culture of virus in specific " embryomas " [see *V.B.* **23,** 2518 & 2519]. Variants O, A, and C were successfully cultured on 37 cattle and 588 kg. of virulent material were obtained. An attempt to culture virus on a non-specific " embryoma " (cardiac muscle) failed. Variants retained their specificity and a good vaccine was produced by the Waldmann method.

—G. V. LAUGIER.

KRIVOSHAPKIN, N. A. & RED'KO, A. S. (1953). [**Immunology of foot and mouth disease.**]—*Veterinariya, Moscow.* **30,** No. 7. pp. 25-26. [In Russian.] 404

The authors made a suspension of those epithelial tissues that are normally attacked by the virus of F. & M. disease, using this as an antigen in hyperimmunizing a horse to obtain an " anti-epithelial cytolytic serum " (AECLS), (titre 1:300 by c.f. reaction). This serum was regarded as specific for these particular tissues, making them more resistant to F. & M. disease infection.

97 healthy cows were divided into 3 groups and injected with different doses of AECLS; 9–12 days later they were herded for

10 days with affected cows without contracting the infection. On the 11th day all were artificially infected, the resultant infections in the 3 groups being 55·7%, 28·5% & 20%, while in controls it was 88·8%. The 20% group had received a single dose of 15 ml. for adult and 7 ml. for heifers. The course in all the 47 cows that contracted the disease was less acute than in the controls and they recovered in 5–7 days. —F.A.A.

ANON. (1953). VI[e] Conférence pour l'étude des problèmes de l'immunisation anti-aphteuse. (Copenhague, 22 au 27 septembre 1952). Procès-verbal. [**Conference on immunization against foot and mouth disease.**]—*Bull. Off. int. Epiz.* **39**, 17-38. **405**

This is a *verbatim* report of the transactions of the Conference which had as its object a review of eradication methods currently in use with a view to putting better instruments into the hands of those responsible for eradication. Particular attention was paid to the immunizing powers of various strains and observations on the A virus responsible for the European pandemic; the time lag before the appearance of immunity and factors influencing this; the duration of acquired immunity and the variability observed in this connexion; immunization of animals other than cattle; immunological breakdowns; and the use of trivalent and polyvalent vaccines in the field.—G. V. LAUGIER.

GARCÍA-MATA, E., PIZZI, L. & ARAMBURU, H. G. (1952). Contribución al estudio de los anticuerpos inmunizantes de la fiebre aftosa por medio de la rata y el ratón lactantes. [**A study of immunization against foot and mouth disease using unweaned mice and rats.**]—*Gac. vet., B. Aires.* **14**, 79-86. **406**

Bovine hyperimmune and convalescent sera, Types O, A, and C give immediate protection to unweaned mice and rats against lethal doses of homologous virus and this reaction may be used in the titration of F. & M. disease antibodies in sera. Pregnant female mice, injected with hyperimmune serum three days before parturition are able to pass immunity to their offspring both *via* the placenta and *via* the mammary glands.

—I. W. JENNINGS.

REAGAN, R. L. & BRUECKNER, A. L. (1953). **Early appearance of rabies virus in the blood and in the brain of hamsters exposed by rectal instillation. (Preliminary report.)**—*Cornell Vet.* **43**, 496 - 501. [Abst. from authors' summary.] **407**

When a strain of rabies virus isolated from a fox (191800 B.A.I., Enola, Pa.) was instilled rectally into hamsters, (1) without irritation of the lumen of the rectum, and (2) after the lumen of the rectum had been scratched, virus was present in the brain in group 1 after 24 hours and continued to be present until symptoms of rabies developed at 168 hours; it was present in the blood after 8 hours, remained active up to 24 hours, and could not be demonstrated in the blood from then on up to 168 hours. In group 2 virus was present in the brain after 60 hours and continued to be present until symptoms of rabies developed at 168 hours; it was present in the blood at 24 hours and continued to be active up to 48 hours, but could not be demonstrated from 60 up to 168 hours.

REAGAN, R. L., DAY, W. C., MOORE, S., KEHNE, E. F. & BRUECKNER, A. L. (1953). **Response of the Syrian hamster to two strains of rabies street virus by rectal instillation.**—*Amer. J. trop. Med. Hyg.* **2**, 70-73. **408**

Two strains of rabies virus were successfully passaged rectally 5 times in hamsters. Subsequently organs from the fifth passage proved infective on rectal and intra-cerebellar inoculation.—W. S. MARSHALL.

REAGAN, R. L., STEWART, M. T. & BRUECKNER, A. L. (1953). **Study of nine rabies street virus strains in the Syrian hamster.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 793-794. **409**

The authors compared rabies virus, preserved in glycerol, in the brain of a rabid dog, with the brain of the same dog after it had been exposed to the air " for several days ". The glycerol-preserved brain infected hamsters when injected into the rectum. The air-exposed brain, so injected, was infective to most of the hamsters.

GREMLIZA, L. (1953). Kasuistik zum Lyssa-Problem. [**Case reports of a number of persons bitten by a rabid wolf.**]—*Z. Tropenmed. u. Parasit.* **4**, 382-389. [English summary modified.] **410**

Of 32 persons attacked and bitten by a rabid wolf in a rural district in Persia, only 4 underwent effective anti-rabies treatment in the Teheran Pasteur Institute; 15 persons died of manifest rabies. G. gave detailed case reports in order to determine the death rate for the 28 untreated persons. Mortality ran above 50% for persons bitten in the face, scalp and neck region, and somewhat lower when the bites were on the upper limb. The incubation period averaged 24 and 27 days after head and neck bites respectively, and 45 days after arm and

hand bites. G. pointed out that even severe laceration wounds caused by rabid animals do not necessarily lead to infection when left untreated.

GAYLORD, W. H., JR. & MELNICK, J. L. (1953). **Developmental forms of vaccinia virus.**—*Science*. **117**, 10-13. **411**

An electron microscope study of chick chorio-allantoic membranes infected with vaccinia virus revealed the presence of various particles which the authors described; they were considered to be developmental forms of classical elementary bodies.—IAN DAVIDSON.

MELNICK, J. L. & GAYLORD, W. H., JR. (1953). **Problems with spontaneous ectromelia (mouse pox) in a virus laboratory.**—*Proc. Soc. exp. Biol., N.Y.* **83**, 315-318. **412**

An account of a further outbreak of mouse pox (infectious ectromelia) [*V.B.* **23**, 2535 & 2536] in a different colony in the same laboratory. The virus isolated was identified by cross-haemagglutination and cross-neutralization tests with vaccinia virus. The infected colony and harvests of other viral agents prepared from these mice were destroyed—F.E.W.

KUBIN, G. (1953). Zur Bekämpfung der Ferkelgrippe. [**Control of swine influenza.**]—*Wien. tierärztl. Mschr.* **40**, 332-339. [English, French and Italian summaries.] **413**

Besides segregation of animals which cough, and the purchase of only healthy pigs, the outdoor system of management has been found to be the most successful method of controlling swine influenza in Germany. The sows and their litters are transferred from the farrowing house to special wooden huts 1–2 weeks after parturition. K. stated that where such a method of management is not possible, treatment with aureomycin, 20 mg./kg. body wt. daily for 4 days is indicated.—H. BEHRENS.

HIRST, G. K. (1952). **Strain-specific elements in influenza antigens.**—*J. exp. Med.* **96**, 589-603. **414**

Antisera prepared against 10 different influenza A strains were absorbed with heterologous strains. With these absorbed sera the 10 strains fell into 7 groups. Absorbed specific antisera against the 7 groups were used to test the haemagglutination-inhibition titre of a large number of influenza A strains and with few exceptions most were inhibited by a simple serum.—A. H. LINTON.

ANDREWES, C. H. (1952). **The work of the World Influenza Centre.**—*J. R. Inst. publ. Hlth.* **15**, 309-318. **415**

International collaboration is necessary to understand all the mysteries of influenza. The most important object of the World Influenza Centre is to obtain sufficient information to understand the epidemiology of the disease. Its other object is to study the antigenic changes in influenza viruses and to see when new strains arise. About 60 influenza laboratories exist all over the world.—W. R. BETT.

ANON. (1951). **Experimental Report No. 23 of Government Experimental Station for Animal Hygiene. (The 2nd Report on Japanese equine encephalitis.)**—Japan, Tokyo: Govt. Experimental Station for Animal Hygiene. pp. 198. **416**

This report on Japanese equine encephalitis contains 15 papers, most of which have been abstracted [see *V.B.* **23**, 894-901, 3343-3344, and the following abst.].—KOGI SAITO.

YONEMURA, T. & YOGO, S. (1951). [**Analysis of blood of cattle artificially inoculated with virus of Japanese equine encephalitis.**]—*2nd Rep. Jap. Equine Encephalitis*. 139-147. [English summary.] **417**

Systematic analysis of the blood of cattle artificially infected with the virus of Japanese equine encephalitis revealed no significant changes in total protein, glucose, phospholipoid, calcium, phosphorus, sodium, potassium and chloride; but an increase in globulin and a decrease in albumin were found during the febrile stage and the presence of bilirubin was verified at the terminal stage of the disease.

—KOGI SAITO.

ZENKOVICH, V. P. & SHATALOV, V. F. (1953). [**Control of equine infectious anaemia according to Boshyan's method.**] — *Veterinariya, Moscow*. **30**, No. 6. pp. 20-22. [In Russian.] **418**

The authors summarized results of treating E.I.A. for 3 years in 20 areas involving 4,518 horses. Vaccination with the vaccine "Viev" [*V.B.* **23**, 109], 3–5 ml. repeated 25–30 days later, and symptomatic treatment during the 4–6 weeks' isolation resulted after 2 years in 12 areas being free from the infection. From these lots 1,217 horses were sent to other farms without spreading infection. In the 8 still affected areas during the 3rd year 27 horses fell ill; 9 were treated and 8 recovered; of the 18 left as controls only 3 recovered. Vaccination of foals continued in all 20 areas.

To test the value of vaccine " Viev " 10 vaccinated horses and 4 controls were challenged for immunity; only one, a vaccinated horse, resisted. The authors state that this result, however, need not invalidate either this or any other vaccine, because their value as prophylactics against spontaneous infection remains [see *V.B.* **23,** 2542]. In an outbreak, they think the virus plays a secondary role, coming into action only after ecological factors conducive to health break down [*V.B.* **24,** 104]. As long as ecological conditions remain favourable a vaccine will dominate the E.I.A. virus and even carriers will not spread the disease. Isolation for any length of time was deemed unnecessary for sick horses. The authors promise to give fuller findings in a further communication.—F.A.A.

DOLL, E. R., RICHARDS, M. G. & WALLACE, M. E. (1953). **Adaptation of the equine abortion virus to suckling Syrian hamsters.**—*Corneli Vet.* **43,** 551-558. [Authors' summary modified.] **419**

The equine abortion virus, strain Kentucky-A, successfully infected unweaned hamsters and was carried through 10 passages in this host. Growth of the virus in hamsters was evident from the lethal effect of inoculation, the development of acidophilic intranuclear inclusion bodies in the hepatic cells of fatally infected hamsters during each passage, typical infection and abortion of equine foetuses by sixth-hamster-passage virus, fixation of complement by infected hamster liver antigen in the presence of known immune serum from horses, and fixation of complement by hamster virus immune serum in combination with known infected antigen of equine origin.

DE KOCK, G. & NEITZ, W. O. (1950). **Sheep as a reservoir host of Snotsiekte (or bovine malignant catarrhal fever) of cattle in South Africa.**—*S. Afr. J. Sci.* **46,** 176-180. **420**

" Snotsiekte," now recognised as being identical with bovine malignant catarrh, generally occurs in cattle which have had contact with wildebeest (*Connochaetes gnu* and *C. taurinus*). The authors investigated 8 outbreaks, in 5 of which there was contact with sheep, but no definite contact with wildebeest. To ascertain whether sheep acted as intermediate hosts, 15 sheep from an infected farm were placed in close contact with 8 susceptible cattle. Two of the cattle developed " snotsiekte " after incubation periods of 9 and 10 weeks respectively.—R.M.

PIERCY, S. E. (1953). **Investigation into infectious bovine malignant catarrh.**—*Proc. XVth Int. vet. Cong. Stockholm.* **1953. 1,** Pt. 1. 328-332. [In English. French and German summaries.] **421**

The author isolated a strain of the " head and eyes " form of bovine malignant catarrh and effected 35 serial passages in cattle by the s/c injection of lymph node material. Neither age, breed, nor sex appeared to influence susceptibility.

The virus could not be stored for more than a few days at normal temperatures, and freezing was harmful to it.

When all sheep were removed from a farm where 72 cattle had succumbed to bovine malignant catarrh within 18 months, only 4 further cases occurred in the 3 subsequent months, and thereafter the disease was not reported for 2 years. Infection appeared for the first time, however, among cattle on the farm to which the sheep were removed, but here again the epidemic came to an end when the sheep were taken away.

In laboratory experiments, however, sheep which were kept together with infected cattle for 8 weeks did not infect susceptible cattle with which they were brought into contact, nor could the susceptible cattle be infected by the injection of lymph node, spleen, or liver material from the sheep.—A.S.

PLOWRIGHT, W. (1953). **The pathology of infectious bovine malignant catarrh in cattle and rabbits.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 323-328. [In English. French and German summaries.] **422**

In an investigation of the " head and eyes " form of bovine malignant catarrh P. noted the destruction of the small lymphocytes and a simultaneous increase in the number of the larger lymphocytes. There was infiltration into the media and intima of the small veins. No inclusion bodies were found. There were pathological changes in the blood, lymphatic system, superficial epithelia, and parenchyma.

P. concluded that a diagnosis of bovine malignant catarrh could be made on the basis of histological examination alone.—A.S.

TSUBAKI, S., SAITO, Y., SHIMADA, F. & MASU, S. (1953). **[Studies on so-called bovine influenza. II—1. Isolation of virus. II—2. Pathological observation. II—3. Experiment on calves and others. II—4. Immunological experiment.]**—*Jap. J. vet. Sci.* **13,** 294, 294-295, 295-296 & 296. [Only abst. given.] **423**

An account of artificial infection of cattle with virulent blood from cattle with " bovine

influenza ", a disease with many points of resemblance to " three-day-fever " of cattle; of the symptoms and lesions produced; of immunological studies on a calf born to an infected cow; and of the use of a vaccine prepared from virulent blood.—Kogi Saito.

Olson, C., Jr. & Palionis, T. (1953). **The transmission of proliferative stomatitis of cattle.**—*J. Amer. vet. med. Ass.* **123,** 419-426. [Authors' summary copied *verbatim.*] **424**

Transmission experiments with proliferative stomatitis in calves indicate that this is an infectious and contagious disease caused by a filterable agent. Preliminary or simultaneous feeding with hyperkeratosis-producing feedstuff was necessary to make older animals receptive to action of the agent. Very young calves were susceptible without preliminary treatment. Immunity follows an active attack of the disease. The agent of proliferative stomatitis is capable of causing a chronic lesion on the skin of man. The agent appears to be different from that of cutaneous papillomatosis of cattle, oral papillomatosis of the dog, and vesicular stomatitis.

Mollaret, P., Salomon, Louis; Salomon, Léone. (1953). Une nouvelle méningite humaine due à l'ultra-virus de la stomatite pseudo-aphteuse épizootique des bovidés. **[Meningitis in man caused by a bovine stomatitis virus.]**—*C. R. Acad. Sci., Paris.* **236,** 2555-2557. **425**

Four cases of meningitis which occurred in workers at the central laboratory of veterinary research of the French Ministry of Agriculture are described. All the usual bacterial, leptospiral and viral causes of meningitis in man were excluded by complement-fixation tests and by inoculation of laboratory animals.

The virus from the human cases is stated to be identical with one which causes a " stomatite pseudo-aphteuse des Bovidés " and which has been under study for two years at the veterinary laboratory in which the human cases occurred. It is stated that an account of the veterinary studies is to be published shortly.

It is also stated that three similar cases have been encountered in human beings outside the veterinary laboratory.—M.C.

Boyd, A. G. (1953). **Scrapie in California.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 254-258. **426**

Scrapie was diagnosed on two farms in California. Direct movement of sheep had taken place between the two premises. All the in-contact sheep were slaughtered.—D. Luke.

Jezierski, A. (1953). Note préliminaire sur l'isolement d'un virus de chèvre, pathogène pour les chèvres et les bovidés. **[Isolation from goats of a virus pathogenic for goats and cattle.]**—*Bull. Agric. Congo belge.* **44,** 773-778. [Flemish summary.] **427**

A preliminary account of the isolation from goats of a previously unreported virus pathogenic for goats and cattle and serially transmissible. The symptoms consisted of a rise in temperature, and muscular trembling; at P.M. examination there was a great excess of fluid in the pericardial sac. No detailed investigations were carried out.—J.D.

Glässer. (1953). Zum Verlaufe und der Bekämpfung der Schweinepest in den letzten Jahren. **[Epidemiology and control of swine fever.]**—*Tierärztl. Umsch.* **8,** 200-202. **428**

During recent years in Germany swine fever has been marked by gastro-enteritis, pneumonia, dermatitis and nervous disorders (excitation, convulsions, paralysis). Control of swine fever is possible by slaughter of infected animals, boiling of swill and prohibition of vaccination against swine fever.—H. Behrens.

Biester, H. E. & Schwarte, L. H. (1953). **The hog cholera problem and vaccination.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City June 23-26th,* 1952. pp. 56-67. **429**

The authors discussed the problem of post vaccination reactions after the use of immunizing agents against swine fever; they cited examples of such problems following the use of even the more modern tissue vaccines and attenuated viruses.—D. Luke.

Sippel, W. L. (1953). **Experiences with hog cholera vaccines.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 203-208. **430**

S. discussed the advantages of modified live virus vaccines in the control of swine fever. Breakdown of immunity in vaccinated pigs had been reported. He discussed possible causes. With some of the vaccines used " over reaction " occurred in some breeds. This may indicate that further attenuation of the virus is desirable.—D. Luke.

Fladness, S. O. & Mulhern, F. J. (1953). **Progress report on the control and eradication of vesicular exanthema.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 230-235; discussion pp. 236-239. **431**

The authors gave a brief outline of the history of vesicular exanthema of swine in the U.S.A. The disease has been successfully con-

trolled by slaughter of infected pigs. Salvage for food purposes is permissible, provided that the meat is processed at a higher temperature than usual in order to kill the virus and prevent infected meat scraps going into swill and so back to healthy pigs. The authors emphasized the need for boiling swill and the difficulties of obtaining unified action by various State authorities.—D. LUKE.

LAMONT, H. G., LUKE, D. & GORDON, W. A. M. (1953). **Virus pneumonia in pigs.** [Correspondence.]—*Vet. Rec.* **65**, 599. 432

An account of eradication of virus pneumonia by isolation of non-coughing sows and discarding any litters with the sow where coughing or sneezing is observed.—R. A. HUCK.

YOUNG, G. A., UNDERDAHL, N. R. & HINZ, R. W. (1953). **A serum-neutralization test for transmissible gastroenteritis of swine.**—*Cornell Vet.* **43**, 561-567. [Abst. from authors' summary.] 433

An account of a test for demonstrating the development of specific serum-neutralizing antibodies in adult swine following exposure to transmissible gastro-enteritis. The test involves *in vitro* neutralization of virus by convalescent sera, with absence of neutralization by acute-phase sera. Five-day-old disease-free pigs devoid of antibodies are used as test animals. Inapparent infections with the virus in adult stock were also demonstrated.

HODGMAN, S. F. J. & LARIN, N. M. (1953). **Diagnosis of canine virus hepatitis (Rubarth's disease).**—*Vet. Rec.* **65**, 447-450. 434

The authors discussed some of the tests used in the diagnosis of canine virus hepatitis and their usefulness both during an outbreak and after deaths have occurred. They gave some indications of the type of material required by laboratories for diagnosis.—E. A. HIRSCH.

CORSICO, G. (1953). Contributo alla conoscenza del quadro anatomo-patologico della epatite contagiosa del cane. **[Pathology of canine virus hepatitis.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 208-212. [English and French summaries.] 435

A litter of five 40-day-old puppies died from canine virus hepatitis. The P.M. findings were typical of the disease, but in addition pustular eruption of the skin was present.

—R.M.

COFFIN, D. L., COONS, A. H. & CABASSO, V. J. (1953). **A histological study of infectious canine hepatitis by means of fluorescent antibody.**—*J. exp. Med.* **98**, 13-20. [Authors' summary modified.] 436

A study of experimental canine virus hepatitis in dogs by means of specific fluorescent antibody indicated that the intranuclear inclusions of this disease contain high concentrations of viral antigen.

The increase in virus in the nuclei, as indicated by the accumulation of specific antigenic material, began on the nuclear membrane and spread from there to the interior of the nucleus, with the gradual formation of larger granules. Subsequently there appeared the homogenous inclusion bodies characteristic of this infection.

BULL, L. B., RATCLIFFE, F. N. & EDGAR, G. (1953). **Myxomatosis: its use in the control of rabbit population in Australia.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 396-399. [In English. French and German summaries.] 437

In May 1950 rabbits infected with the virus of myxomatosis were set free in the Murray river district. Several months later the disease took hold, and spread rapidly, though it remained confined to the damp areas of the river system.

*Anopheles annulipes* and *Culex annulirostris* were important vectors, feeding freely on rabbits, but the rapid spread of the disease, which sometimes traversed 600 miles in a week, could not be explained in terms of the flight of mosquito vectors.

In 1951 and 1952 more infected rabbits were liberated in many other areas, but under natural conditions the disease lost some of its virulence and a number of rabbits recovered from subclinical infection and developed resistance.

The permanent value of the disease as a weapon in rabbit control remains to be seen.

—A.S.

FENNER, F. (1953). **Changes in the mortality-rate due to myxomatosis in the Australian wild rabbit.**—*Nature, Lond.* **172**, 228-230. 438

The drop in mortality from myxomatosis among wild rabbits in Australia, observed since the first impact of the disease, is partly due to the presence of immune animals, but may be contributed to by attenuated variants of the virus and increased innate resistance of the host. Other factors, namely environmental temperature and possible interference by neurotropic viruses such as Murray Valley encephalitis virus, are also discussed.—W. S. MARSHALL.

Jacotot, H. & Valée, A. (1953). A propos du foyer français de myxomatose des lapins. **[Epidemic of myxomatosis in rabbits in France.]**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 393-395. [In French. English and German summaries.] **439**

A report of an epidemic among wild rabbits near Paris, in the summer of 1952. The authors regarded the disease as a serious menace to gamekeepers interested in preserving wild rabbits as well as those who breed domestic rabbits. He suggested that veterinarians should take steps to eradicate the disease by vaccination.—A.S.

Saurat, P. & Lautié, R. (1953). Le myxome infectieux ou myxomatose du lapin. **[Myxomatosis of rabbits.]**—*Rev. Méd. vét.* **104,** 449-461. **440**

Myxomatosis spread through 39 Departments of France in less than 12 months. The authors gave an account of the aetiology, symptoms, morbid anatomy, prophylaxis and vaccination with Shope's fibroma virus. They outlined the difficulties involved in effective control. —G. V. Laugier.

Lankamp, C. T. (1953). Myxomatose bij konijnen. **[First outbreak of myxomatosis in rabbits in the Netherlands.]**—*Tijdschr. Diergeneesk.* **78,** 816. **441**

L. described briefly the first recorded outbreak of myxomatosis in rabbits in the Netherlands. It occurred amongst 10 domestic rabbits on the same premises. There are two photographs of affected rabbits.—R.M.

Akkermans, J. (1953). De eerste gevallen van myxomatose in Nederland. **[First cases of myxomatosis in rabbits in the Netherlands.]** —*Tijdschr. Diergeneesk.* **78,** 815-816. **442**

This is not a case report but a general discussion on literature, without references, in connexion with the first case of myxomatosis in rabbits in the Netherlands. [See preceding abst.] —C. A. van Dorssen.

Fenner, F. & Woodroofe, G. M. (1953). **The pathogenesis of infectious myxomatosis: the mechanism of infection and the immunological response in the European rabbit** (*Oryctolagus cuniculus*).—*Brit. J. exp. Path.* **34,** 400-411. [Authors' summary copied *verbatim.*] **443**

Myxomatosis in the European rabbit is a generalized disease, in which the virus spreads in a stepwise fashion from the site of inoculation, through the local lymph node to the circulation. After a period of multiplication in an internal focus, which may be the walls of the small arterioles, secondary dissemination occurs in the skin and elsewhere. Multiplication of this secondarily distributed virus causes the development of generalized lesions of the skin, consisting of scattered small papules over the body and generalized thickening of the face and the anogenital region.

The primary and secondary skin lesions, especially the thickened tissues around the eyes and the base of the ears, as well as the papules on the body, were shown to be rich sources of virus, in terms of the ability of mosquitoes to acquire infection by biting through such lesions.

The virus particles which circulate during the viraemic stage of the disease are associated with the leucocytes, probably with the lymphocytes, and in the late stages of the disease soluble antigen appears at high titre in the serum.

The serological reponse was followed in rabbits infected with neuromyxoma virus. Soluble antigen did not appear in the serum in infections with this strain, but the serum became anticomplementary on about the seventh day, and on the 11th day free antibody appeared and rose steadily to reach a high level by the 14th day.

Epstein, B., Reissig, M. & de Robertis, E. (1952). **Studies by electron microscopy of thin sections of infectious myxomatosis in rabbits.** — *J. exp. Med.* **96,** 347-354. [Authors' summary copied *verbatim.*] **444**

Rabbits were inoculated with the C.P.M. strain of myxoma virus and the resulting subcutaneous tumours were fixed, embedded, and sectioned for observations with the electron microscope.

Both round cells and the typical stellate myxomatous cells were observed in addition to changes in the collagen pattern at the intercellular spaces. The cytoplasm of the cells showed a great number of bodies of varying size and density, the largest of them having the size and other characteristics of the elementary bodies of the virus. Some of the bodies showed an internal structure, being formed by the tight clumping of small dense particles.

Distribution curves of the diameter of the elementary bodies and of the smaller internal particles are presented.

The morphological problems involved in the virus-host cell relationship are discussed in the case of the myxoma virus.

MYKYTOWYCZ, R. (1953). **An attenuated strain of the myxomatosis virus recovered from the field.**—*Nature, Lond.* **172,** 448-449. 445

A strain of virus from a wild rabbit captured in Australia killed only one of 14 rabbits infected by direct contact, the disease being mild in some. Passage by inoculation or by mosquito bite produced atypical, though fatal, infections.

M. suggested that a mixture of strains may be involved.—IAN DAVIDSON.

ROCHA LAGÔA, F. R. (1952). Modificação da virulência do virus do mixoma provocada pelos raios X. [**Modification of virulence of the myxoma virus by X-rays.**]—*Mem. Inst. Osw. Cruz.* **50,** 197-204. 446

Depending on the dosage of X-rays applied, dried rabbit mxyoma virus became attenuated in virulence or completely avirulent. There was no evidence of mutation of virus. The irradiated virus seemed to have no antigenic properties and completely failed to protect inoculated rabbits against subsequent injections of virulent virus.—I. W. JENNINGS.

GOGOLAK, F. M. (1953). **The histopathology of murine pneumonitis infection and the growth of the virus in the mouse lung.**—*J. infect. Dis.* **92,** 254-272. [Abst. from author's summary.] 447

A histopathological study of the development of murine pneumonitis virus infection through all stages of the disease. There was a definite pattern of cellular reaction from the initial inflammatory response to the virus up to death of the animal. The recovery of the lung from the effects of infection was studied with the aid of aureomycin, which inactivated the virus at the peak of lung consolidation. Complete resolution of the lung was not obtained in as long as 6 weeks after administration of the antibiotic.

The rate of growth of murine pneumonitis virus in the mouse lung was independent of the size of the infecting inoculum. The total virus content approached a limiting value near the terminal stages of the infection. A comparison of virus increments during successive stages of the infection indicated a constantly decelerating rate of growth.

ANON. (1951-2). **Outbreaks of fowl pest in South-East Ireland, 1950.**—*J. Dept. Agric. Irish Free St.* **48,** 142-161. 448

A detailed history of the outbreaks of Newcastle disease in South-East Ireland in 1950. The disease seems to have spread from infected premises at Fethard-on-Sea in County Wexford, though the original source could not be established.—D. LUKE.

KÖHLER, H. (1953). Die Bedeutung der Encephalitis bei der Diagnose der New-Castle-Krankheit der Hühner. [**Significance of encephalitis in the diagnosis of Newcastle disease.**]—*Dtsch. tierärztl. Wschr.* **60,** 261-267. 449

In the current German epizootic of Newcastle disease very few clinical symptoms and macroscopic lesions are available for a reliable diagnosis. Petechiae, common in former epizootics, now occurred in only 7% of cases; in 56% no macroscopic lesions were found P.M. The haemagglutination-inhibition test failed in numerous cases. On the other hand, microscopic examination of the c.n.s. proved a valuable aid. A non-purulent encephalitis was found in 88·4% and neuritis in 72·9%, both irrespective of the serological findings. They occur also in conditions other than N.D. and an occasional clinical case of N.D. may be found in which such lesions are absent; but by examining several birds from an infected flock, combining histological and serological examination, these shortcomings of the method are reduced to a minimum.—A. MAYR-HARTING.

PLACIDI, L. & SANTUCCI, J. (1953). Sur la réceptivité de certaines espèces au virus de la maladie de Newcastle. [**Susceptibility of various species of birds to Newcastle disease.**]—*Ann. Inst. Pasteur.* **84,** 588-594. 450

Turtle doves (*Streptophelia turtur turtur*) and rock doves (*Columba livia livia*) resisted contact and ingestion of N.D. virus, but succumbed to intramuscular injection. Wood pigeons (*Columba p. palumbus*) were susceptible to ingestion and injection of virus. The tick bird (*Bulbulcus ibis ibis*) was susceptible whereas the bearded vulture (*Gypactus barbatus aureus*) proved resistant.—D. LUKE.

GODFREY, G. F. (1952). **Evidence for genetic variation in resistance to Newcastle disease in the domestic fowl.**—*J. Hered.* **43,** 22-24. 451

G. observed an outbreak of Newcastle disease with low mortality amongst about 700 fowls of various breeds on the same farm. The egg production during the course of the disease was interrupted for a period which varied with the breed and strain of fowl. G. considered that those breeds or crosses in which there was least interruption of egg production were more resistant to the disease, and that this resistance may have been inherited.—R.M.

ELLIS, C. C. & CROOK, E. (1953). **Sanitation and vaccination in the control of Newcastle and other diseases in a large broiler plant.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 284-288. 452

An account of the sanitary measures adopted on a large chicken farm.

Following an outbreak of Newcastle disease which caused a 34·6% mortality, vaccination with N.D. killed virus vaccine was instituted. This reduced mortality to 3–5%. A triethylene glycol aerosol was used to control respiratory diseases, but its value had not yet been established by proper controlled experiments.

—D. LUKE.

WASSERMAN, B. & YATES, V. J. (1953). **Immunity studies with Newcastle disease vaccine (intranasal type).**—*Mich. St. Coll. Vet.* **13,** 91-93. [Abst. from authors' summary.] 453

The immunity of chickens vaccinated intranasally at one day of age with a commercial Newcastle disease vaccine was tested by an intradermal testing technique and by intratracheal challenge.

It was found that immunity, as measured by the intradermal test, reached a peak at the third week, when 86% of the birds were immune, afterwards declining to 8% at 10 weeks.

Seventy-four of 100 birds vaccinated conjunctivally with a potent commercial intranasal N.D. vaccine at one day of age exhibited respiratory symptoms upon intratracheal challenge at 9 weeks of age. Ninety-seven of 100 birds similarly vaccinated and tested intradermally at 9 weeks of age exhibited little or no immunity.

—A.S.

BEAUDETTE, F. R. & BIVINS, J. A. (1953). **The influence of passive immunity on the response to intramuscular and intranasal administration of Newcastle disease virus.**—*Cornell Vet.* **43,** 513-531. [Abst. from authors' summary.] 454

Passive immunity in chickens neutralizes virus administered intramuscularly, and no immunity response is provoked nor does the virus appear in the respiratory tract. Such birds respond to challenge. When administered intranasally to passively immune birds, the virus is also neutralized even though it may appear briefly in the respiratory tract, and there is no immunity response except when a large dose of virus is given. In susceptible birds, virus given intranasally becomes established in the respiratory tract even though small doses are given and immunity is produced. When virus is given intramuscularly, the results are the same except that a larger dose of virus may be required.

FAHEY, J. E., CRAWLEY, J. F. & DUNLOP, W. R. (1953). **Studies on chronic respiratory disease of chickens. Observations on outbreaks in Canada in a two year period.**—*Canad. J. comp. Med.* **17,** 294-298. 455

Symptoms of chronic respiratory disease are usually observed in chickens 5–8 weeks old. The rapid increase in the incidence in Canada may possibly be traced to only a few hatcheries. A high morbidity rate makes the disease of economic importance. Newcastle disease vaccination did not appear to act as a stress phenomenon in the development of chronic respiratory disease.—R. GWATKIN.

PETERSON, E. H. (1953). **Terramycin injections control chronic respiratory disease in two pullet flocks.**—*Vet. Med.* **48,** 311-314. 456

Subcutaneous injection in the neck region of 2 ml. doses (50 mg.) of terramycin hydrochloride suspended in mineral oil gave good results in the prophylaxis and therapy of chronic respiratory disease in two flocks of pullets. The birds were cured 7–10 days after treatment, there were no relapses up to 6 months later, and subsequent production was unimpaired.

—JOHN SEAMER.

MEYER, K. F. (1953). **Distribution and identification of psittacosis viral agents in the animal kingdom.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 338-343. [In English. French and German summaries.] 457

Since 1930, viruses of the psittacosis group have been isolated from many mammals and birds not formerly considered susceptible to infection. It is now known that the virus is not limited to the tissues of the respiratory tract, but that it may also affect the placenta and the nervous system. The authors pointed to the need to improve the present diagnostic procedures, which are laborious and not sufficiently specific.

—A.S.

LEVI-CASTILLO, R. (1953). Die Epidemiologie des Buschgelbfiebers in der Küstenebene von Ecuador. **[Epidemiology of a yellow fever outbreak in the coastal region of Ecuador.]** —*Z. Tropenmed. u. Parasit.* **4,** 254-265. [English summary copied *verbatim.*] 458

In spite of an active campaign for the eradication of yellow fever in Ecuador, started 1946, there was a fresh outbreak in 1951. Fifty-three cases, 19 of which ended fatally, occurred in the

low land region of Santo Domingo de los Colorados, mostly lumbermen and people working in the woods were infected. The virus was probably carried by monkeys of various species amongst whom an epizootic outbreak of jungle yellow fever is recorded, spreading rapidly and extending from Central America to the coastal plains of Ecuador. Transmitting insect is *Haemagogus spegazzinii*. Its larvae often breed in the internodal hollows and stumps of bamboo stems and cannot be reached by antilarval measures. Habitats and behaviour of *Haemagogus* of which very little was known so far, are described in detail. The vaccination of all persons working in the limits of the virgin jungle has been made compulsory as the best preventive measure.

KIRK, R. & HASEEB, M. A. (1953). **Animals and yellow fever infection in the Anglo-Egyptian Sudan.**—*Ann. trop. Med. Parasit.* **47**, 225-231. [Authors' summary slightly modified.] **459**

Wild and domestic animals in the Anglo-Egyptian Sudan were tested for immunity to yellow fever, and a few species were tested in the laboratory for susceptibility to yellow fever virus. Among wild animals, immune bodies were found only in monkeys and in one hyrax (*Procavia*). No immune individual was found in a small series of 10 galago lemurs (*Galago senegalensis senegalensis*) from the Nuba Mountains. In addition to primates, it was found that Sudanese hedgehogs (*Atelerix pruneri*) are susceptible to yellow fever infection, though a closely allied species in Nigeria is resistant.

Immune bodies were found in the sera of domestic animals, including cattle, sheep, pigs and dogs; but further investigations are required to interpret the significance of these results.

REAGAN, R. L. & BRUECKNER, A. L. (1953). **Studies of dengue fever virus in young dogs.**—*Cornell Vet.* **43**, 493-495. **460**

One of two young puppies injected intracerebrally with a strain of dengue fever virus adapted to Swiss mice developed typical symptoms of c.n.s. involvement, and infection was confirmed by mouse inoculation. Four other pairs of puppies inoculated by the intranasal, intercardiac, intraperitoneal and intradermal routes failed to develop infection.—F.E.W.

PAYZIN, S. (1953). **Epidemiological investigations on Q fever in Turkey.**—*Bull. World Hlth Org.* **9**, 553-558. [French summary. Author's summary modified.] **461**

Q fever is endemic in Turkey in both human beings and animals. Cows, sheep, goats, and dogs may play a role as reservoirs of *Rickettsia burneti*. *Ornithodoros lahorensis* ticks also harbour the agent; epidemics among human beings are relatively rare.

Disease induced experimentally in goats in Ankara was characterized by only slight fever and cough for one week. A bronchopneumonia-like disease was observed in a herd of goats during an epizootic. A continuous fever, with no other symptoms, was recorded in an infected cow from which *R. burneti* was isolated, and Q-fever antibodies were demonstrated in its milk. Many cases of infection among sheep were reported.

CORDIER, G., KOVALENKO, C. & HAROUNI, B. (1953). La fièvre Q animale, en Tunisie. [**Q fever in animals in Tunisia.**]—*Rec. Méd. vét.* **129**, 565-573. **462**

An account of exploratory testing for Q fever antibodies in sheep of Sicilian origin in Tunisia. The infection was found to be mainly confined to animals with a history of abortion or mastitis. The intradermo-palpebral reaction, complement-fixation and biological tests confirmed the presence of Q fever, the results being tabulated. Testing of goats, pigs, cattle and horses revealed the existence of infection in all except pigs.—G. V. LAUGIER.

WEYER, F. (1953). Die Beziehungen des Q-Fieber-Erregers (Rickettsia burneti) zu Arthropoden. [**Some attempts to infect various blood - sucking arthropods with** *Rickettsia burneti*.]—*Z. Tropenmed. u. Parasit.* **4**, 344-382. [Abst. from English summary.] **463**

Ticks (*Ornithodoros moubata*), body lice, fleas, bedbugs, reduviid bugs, and larvae of meal worms were infected with rickettsial material by sucking or by the intrarectal and intracoelomal routes. Whereas, under natural conditions, *R. burneti* is found only in ticks of various species, all the above named arthropods proved more or less susceptible when experimentally infected. Rickettsia multiplied rapidly in the coeloma and intestinal cells without serious damage to the host, they also spread occasionally to other organs and were excreted in various ways, maintaining their virulence.

In contrast to other rickettsia, *R. burneti* seems highly adaptable to various organs and cell types of altogether heterogenous arthropods, most of which, however, do not act as natural hosts, carriers or transmitters.

GREIFF, D., CHIGA, M., BLUMENTHAL, H. T. & PINKERTON, H. (1953). **The effect of X-radiation on the multiplication of** *Rickettsia*

*mooseri* **in embryonated eggs.**—*J. exp. Med.* **97,** 139-144. **464**

Eggs were given doses of 100–1,500 r 24 hours before or 48 hours after inoculation with *R. mooseri.* Rickettsial multiplication occurred earlier and was greater in irradiated eggs. Irradiation inhibited the rickettsiostatic effect of incubation at 40°C., and that of streptomycin, but did not inhibit that of penicillin, aureomycin or *p*-aminobenzoic acid.—Ian Davidson.

Price, W. H. (1953). **A quantitative analysis of the factors involved in the variations in virulence of rickettsiae.**—*Science.* **118,** 49-52. **465**

A comparison of four strains of *R. rickettsi* in respect of (1) virulence in g. pigs and chick embryos, (2) toxin production, (3) effect of passage in animals and in ticks, (4) enzyme systems.—Ian Davidson.

Wong, S. C., James, C. G. & Finlay, A. (1953). **The action of carbomycin (magnamycin) on some viral and rickettsial infections.**—*Antibiot. & Chemother.* **3,** 741-750. [Spanish summary pp. 763-764. Abst. from authors' summary.] **466**

The antibiotic, carbomycin (a product of *Streptomyces halstedii*), was active *in ovo* against *Rickettsia prowazeki, R. typhi, R. akari, R. tsutsugamushi, R. rickettsi, R. conori,* North Queensland tick typhus, *R. burneti,* and the viruses of psittacosis, lymphogranuloma, human pneumonitis, feline pneumonitis, and sporadic bovine encephalomyelitis. It had therapeutic activity, orally as well as parenterally, for mice infected with psittacosis, rickettsialpox, and scrub typhus; it was also effective against epidemic typhus and Rocky Mountain spotted fever in g. pigs. It was less effective against murine typhus infection in mice than against the infectious organisms mentioned above. It was ineffective against herpes simplex, mengo encephalomyelitis, rabies, vaccinia, and poliomyelitis, type II viruses.

Carbomycin compared favourably with chlortetracycline but was more effective than either oxytetracycline, erythromycin (a product of *Streptomyces erythrens*) or chloramphenicol in experimental *R. tsutsugamushi* infection.

When the initial infection of psittacosis virus was small (125 $LD_{50}$), 1 mg. of carbomycin given 24 hours after infection was sufficient to protect all mice.

Carbomycin could be given as late as 96 hours after infection with massive dose of psittacosis virus with marked beneficial results.

Dickinson, L., Chantrill, B. H., Inkley, G. W. & Thompson, M. J. (1953). **The antiviral action of phenanthridinium compounds.**—*Brit. J. Pharmacol.* **8,** 139-142. [Authors' summary copied *verbatim.*] **467**

Twenty-three phenanthridines and related compounds were tested against influenza A virus in eggs, against Pb phage of *Ps. pyocyanea,* and against a range of bacteria.

Many compounds possessed marked antiphage action, up to 1,000 times that on the bacterial host. The host, *Ps. pyocyanea,* and other Gram-negative bacilli were much less susceptible than the Gram-positive bacteria.

Several of the compounds active against phage possessed slight anti-influenza activity in eggs; the most promising of these compounds was, however, inactive in mice.

Seven of nine compounds had a suppressive action against Rous sarcoma virus in chicks, but only at a toxic dose.

Cox, H. R. (1953). **Viral vaccines and human welfare.**—*Lancet.* **265,** 1-5. **468**

Immunization against epidemic virus infections in man has been most successful with smallpox and yellow fever, against which a living ' attenuated ' or ' modified ' virus is used. Using the same principle, new living virus vaccines have been developed against Newcastle disease, rabies, dog distemper and swine fever. All these are commercially available.

—W. R. Bett.

Danskin, D. (1953). **Observations on the use of iodine solutions in the sterilization of shell surface during chick-embryo culture procedures.**—*J. med. Lab. Tech.* **11,** 241-243. [Author's summary modified.] **469**

Solution of iodine applied as an antiseptic precaution to the shell of embryonated hen's eggs, before inoculation, may induce the formation of plaques with death of the embryo in many cases. This plaque formation found on the chorio-allantoic membranes of eggs which survive the first day may closely resemble those produced by specific virus infection such as herpes, louping-ill, etc. The use of iodine solution should therefore be avoided, especially at dry times of the year when the porosity of egg shells is increased.

*See also absts.* **543** (book, diseases of poultry); **651-652** (reports, India); **654** (report, Somaliland).

## IMMUNITY

FRIEND, C. (1953). **A study of the effects of sodium salicylate and some structurally related compounds on antigen-antibody reactions** *in vitro*.—*J. Immunol.* **70**, 141-146. 470

Sodium salicylate and related substances including acetyl-salicylic acid and all three hydroxy-benzoic acids (*ortho, meta- and para-*) all inhibited the precipitation of a typical antiprotein and antipolysaccharide antigen-antibody system to a significant degree. This *in vitro* inhibition was apparently due to an increase in the solubility of the antigen-antibody complex. The action was partially reversible, fairly rapid, and took place regardless of whether the sytems were incubated at 5° or 37°C.

The object of this work was to give some guidance in the treatment of rheumatic fever and serum sickness.—I. W. JENNINGS.

STEVENS, K. M. (1953). **Antigen retention in the rabbit.**—*J. exp. Med.* **97**, 247-255. [Author's summary modified.] 471

Normal and irradiated rabbits were given small doses of $I^{131}$ bovine gamma globulin (BGG) and the rates of its loss from their blood were determined. The figures agreed with those of previous workers.

Three to four months later, both groups were reinjected with antigen. The control group gave an accelerated (anamnestic) rate of loss, indicative of the immune state. The irradiated group gave a response similar to that given by the control group on primary injection.

Rabbits recover from 500 r of X-ray in less than 2 months. Hence, rabbits given BGG soon after irradiation should become immune to this antigen in 2 months if they retain it. Since rabbits reinjected with BGG 3 to 4 months after irradiation did not give an accelerated response, the BGG must not have been retained over the period of time necessary for recovery; *i.e.*, less than 2 months. As the rate of antigen loss is greater in normal than in irradiated animals, normal rabbits will have lost BGG as active antigen before the irradiated animals.

The amounts of antigen used (0·25 to 0·4 mg./kg.) more nearly approximate the amounts present during disease than have the amounts used in previous studies of antigen retention.

S. discussed the hypothesis that protein antigens are lost as fast or faster than homologous proteins and concluded that this is a valid concept.

FAGRAEUS, A. & GRABAR, P. (1953). Études sur le transfert á des lapins neufs de la capacité de production d'anticorps par des fragments de rate d'animaux immunisés. **[Production of antibodies by rabbits into which portions of spleen from immunized rabbits have been transplanted.]**—*Ann. Inst. Pasteur.* **85**, 34-47. 472

When a suspension of spleen tissue from rabbits, previously immunized against *Salmonella typhi* and then treated with a booster dose, was injected intraperitoneally into normal rabbits, specific antibodies against *S. typhi* were formed in the latter. The spleen suspension, to be effective, must contain some intact cells and should be taken more than one day after the booster injection. Control experiments revealed that this is not merely an intraperitoneal inoculation with antigen, left over in the spleen of the immunized animal, but the transfer of the capacity to synthesize the antibody.

—A. MAYR-HARTING.

BILLINGHAM, R. E., BRENT, L. & MEDAWAR, P. B. (1953). **'Actively acquired tolerance' of foreign cells.**—*Nature, Lond.* **172**, 603-606. [Authors' summary copied *verbatim*.] 473

Mice and chickens never develop, or develop to only a limited degree, the power to react immunologically against foreign homologous tissue cells with which they have been inoculated in foetal life. Animals so treated are tolerant not only of the foreign cells of the original inoculum, but also of skin grafts freshly transplanted in adult life from the original donor or from a donor of the same antigenic constitution.

Acquired tolerance is immunologically specific: mice and chickens made tolerant of homografts from one donor retain the power to react against grafts transplanted from donors of different antigenic constitutions.

Acquired tolerance is due to a specific failure of the host's immunological response. The antigenic properties of a homograft are not altered by residence in a tolerant host, and the host itself retains the power to give effect to a passively acquired immunity directed against a homograft which has until then been tolerated by it.

The fertility of tolerant mice is unimpaired.

BORDUAS, A.-G. & GRABAR, P. (1953). L'hémagglutination passive dans la recherche des anticorps antiprotéiques. **[Haemagglutination in the study of antiprotein antibodies.]**—*Ann. Inst. Pasteur.* **84**, 903-923. 474

A number of experiments using the tanned-cell technique described by BOYDEN [*V.B.* **21**,

3620] to detect anti-protein antibodies by agglutination suggested:—(a) That tanned red cells could absorb more than one antigen from a mixture so that impure antigens might give confusing results; (b) That antibody titres by this technique may be unrelated to antibody measurements by precipitation methods, possibly because non-precipitating or incomplete antibodies were detected by the tanned cell method; and (c) That in the zone of antigen excess agglutination activity could be demonstrated.—G. Fulton Roberts.

Ovary, Z. (1953). **A new method for the differentiation of heterophyle and isophyle antibodies in rabbit anti-sheep sera.**—*Acta allerg. Kbh.* Suppl. III. pp. 170-172. [In English.] 475

The author described a method elaborated by Bier Sequeira and himself of differentiating between heterophile and isophile (species specific) antibody, and roughly estimating the amount of isophile antibody, by intradermal injection of rabbit anti-sheep serum into a g. pig.—I. W. Jennings.

Eyquem, A., Jochem, E., Podliachouk, L. & Millot, P. (1953). Étude de l'iso-hémagglutinine anti-T chez différentes espèces animales. [**The anti-T isohaemagglutinin in the blood of horses, mules and sheep.**]—*Ann. Inst. Pasteur.* 85, 127-130. 476

The anti-T agglutinin, in man at any rate, is an antibody the specificity and origin of which is ill-understood. The authors studied it in horses (mean titre in 182 horses was 1:80), in mules (mean titre rather lower in the 60 sera studied, and constant on repeated examination) and sheep (mean titre in 53 animals was 1:165). The anti-T agglutinin was absent from 3 horses and 2 mules.—G. Fulton Roberts.

Podliachouk, L. & Eyquem, A. (1953). Les groupes sanguins des équidés. III.—Les groupes sanguins des ânes. [**The blood groups of donkeys.**]—*Ann. Inst. Pasteur.* 84, 966-968. 477

Blood group antigens which have been found in donkeys are labelled A, B, C, D, E and F. The two last are rare and all except group B are also found in the horse. The authors tested by haemagglutination with specific absorbed sera, the cells of 47 donkeys of which 35 contained the B antigen (and were classed as group B); in the other 12 none of the antigens could be detected (and these were classed as group O). Examination of the serum of 40 of these donkeys for naturally occurring agglutinins revealed the following incidence:—anti-A, 37; anti-C, 12; anti-D, 40 (tested with horse cells) or 19 (tested with donkey cells); anti-E, 18.—G. Fulton Roberts.

Riek, R. F. (1953). **Studies on allergic dermatitis ("Queensland itch") of the horse. I. Description, distribution, symptoms and pathology. II. Treatment and control.**—*Aust. vet. J.* 29, 177-184 & 185-187. 478

I. This disease, more commonly known in Australia as "Queensland itch", occurs in summer, in particular horses and tends to recur each year in the same animals. The lesions are confined to the dorsal parts of the body and are extremely itchy. Initial papules are followed by crusts and then alopecia, which may become extensive. Histological examination characteristically reveals eosinophilic infiltration of the dermis. An increase in blood leucocytes, eosinophiles and platelets occurs in susceptible animals during the summer.

II. R. gave no details of the investigation of the aetiology of "Queensland itch", but suggested that hypersensitivity to the bites of a sandfly, *Culicoides robertsi*, is the cause of the condition. Stabling at night prevented the occurrence of the disease in susceptible horses, and those already affected recovered. Weekly spraying with 1% and 2% D.D.T. also gave good protection. Treatment with "Hapamine" (histamine azoprotein) gave good results in five of six affected animals.—D. C. Blood.

*See also absts.* **336-337** (swine erysipelas); **338** (antigenic typing of *Past. septica*); **345** (differentiation of infected and vaccinated reactors to the serum agglutination test for brucellosis); **347** (Strain 19); **350** (agglutination test for brucellosis); **356** (agglutination of red cells by *Cl. welchii*); **357** (pulpy kidney disease vaccine); **397-406** (F. & M. disease); **407-410** (rabies); **414-415** (influenza); **418** (E.I.A.); **419** (virus abortion of mares); **423** (bovine influenza); **429-430** (swine fever); **436** (canine virus hepatitis); **443** (myxomatosis); **452-454** (Newcastle disease); **468** (viral vaccines).

## PARASITES IN RELATION TO DISEASE [ARTHROPODS]

Sergent, E. (1952). Répartition géographique de la "thimni", myiase oculo-nasale de l'homme, due à l'oestre du mouton. [**Geographical incidence of myiasis in man caused by *Oestrus ovis*.**]—*Bull. Acad. nat. Méd.* 136, 519-520. 479

From replies to a questionnaire sent to ophthalmologists in various countries where sheep are more numerous than men, it was surprisingly evident that there is a striking absence of human myiasis due to *Oestrus ovis* in Australia.—W. R. Bett.

DE TOLEDO, A. A. (1950). Contrôle do berne e das bicheiras com o BHC (hexacloreto de benzeno). **[The control of *Dermatobia hominis* and blowfly larvae with benzene hexachloride.]**—*Biológico*. **16**, 133-136. 480

T. described the preparation of a skin dressing containing 4% gamma isomer B.H.C. in a base of lubricating grease and used oil. In affected cattle, this dressing was applied once to the sites on the skin where the larvae of *D. hominis* were present. A concentration of 3% γ-isomer B.H.C. was necessary for a kill of all ages. After treatment of a herd of 60 cows, the milk yield rose from 400 to 480 litres per day. T. discussed the use of this dressing for the control of myiasis caused by blowflies.

—R.M.

ADAMS, P. G., CASTILLO, C. H. & SALMERON, R. (1952). **Application of toxaphene for torsalo fly control.**—*Agric. Chem.* **7**, pp. 33-35, 119 & 123. 481

Control of infestation of cattle with *Dermatobia hominis* and ticks was obtained by spraying the animals with a 0·5% concentration of toxaphene emulsion at 14-day intervals. Promising results were also obtained by applying a smear, containing 3% benzene hexachloride and 35% pine oil, to infested areas on the body.—W. MOORE.

LEWIS, E. A. (1953). **Land use and tsetse control.**—*E. Afr. agric. J.* **18**, 160-168. 482

A detailed description of the various direct and indirect measures taken to free bush from *Glossina* spp. and to keep it free until the land has been settled.—A.S.

HENRARD, C. L. (1951). Répartition des glossines au Congo belge et au Ruanda-Urundi. **[Distribution of *Glossina* in the Belgian Congo and Ruanda-Urundi.]**—*Bull. Inst. roy. Colon. belge*. **22**, 967-993. 483

Information collected from papers, local museums, National Park Institutes etc., together with the author's own observations, was used to describe the ecology of the species of *Glossina* found and to plot their distribution on a map (published separately). A comprehensive bibliography was given.

—BERYL A. KAY.

OLDROYD, H. (1952). **The horse-flies (Diptera: Tabanidae) of the Ethiopian region. Volume I. *Haematopota* and *Hippocentrum*.** pp. ix +226. London: British Museum (Natural History). 40s. 484

With the exception of a few pages on the genus *Hippocentrum* this first volume is devoted almost entirely to the genus *Haematopota*, which is described in great detail. After a few brief general chapters on the biology, physiology and morphology of the genus, and its relation to disease, there follows a key to the species-groups and then the keys to species, and descriptions, which occupy the greater part of the volume.

There is an extensive list of references, and a list of species arranged in species-groups.

—A.S.

FEDYUSHIN, A. V. (1949). **[The role of pasture management in the control of ticks and tick-borne diseases of man and agricultural animals.]**—*Zool. Zh.* **28**, 485-494. [In Russian.] [Abst. from abst. in *Rev. appl. Ent.* Ser. B. **41**, 66-67. (1953).] 485

An account of a study carried out in the forest-steppe zone of western Siberia in 1939 and 1940. The ticks, *Dermacentor marginatus* and *D. pictus*, were collected on cattle and rodents and by drags from the ground, in natural pastures in woodland, and in improved pastures that were in their fifth year of growth, had a few clumps of trees in them and had been used for grazing for three years. Both species occurred in the improved pastures, but were far less numerous than in the natural ones. The average and (in brackets) max. numbers of ticks per head on cattle in the improved and natural pastures were 0·13 (3) and 4·6 (33), respectively, in September 1939, and 0·02 (1) and 1–3·2 (45) in May 1940. The numbers of rodents present and the percentages of them infested by larvae and nymphs of the ticks were also far smaller in the improved pastures and hardly any ticks were collected by drags in them.

The individual stages of both ticks were completed more rapidly in the open improved pastures than in the shady forest ones. Considerable percentages of engorged females of each species survived the winter in the improved pastures, though *D. pictus* was the more resistant. Temperatures were rather above normal except in January when the minimum was −42°C. [−43·6°F.]. When the ticks were exposed on a ploughed, bare plot, winter mortality was complete and the dead ticks were found in the upper 2 in. of the soil.

The survival of unfed ticks after ploughing was found to be in inverse proportion to the ploughing depth and the humidity of the soil.

Schulz, K. C. A. & Thomas, A. D. (1953). *Pneumonyssus caninum*, **the frontal sinus and nasal mite of dogs.**—*J. S. Afr. vet. med. Ass.* **24**, 107-110. **486**

*P. caninum* was present in the frontal sinus and nasal passages of two adult dogs but not elsewhere; the animals had been destroyed for conditions unassociated with the presence of the mites. Slight muco-catarrhal sinusitis and rhinitis were observed, but no gross lesions were apparent.—D. W. Jolly.

*See also absts.* **463** (experimental infection of some arthropods with *R. burneti*).

## PARASITES IN RELATION TO DISEASE [HELMINTHS]

Sanderson, A. R. (1953). **Maturation and probable gynogenesis in the liver fluke,** *Fasciola hepatica* **L.**—*Nature, Lond.* **172,** 110-112. **487**

Aceto-orcein squashes of the reproductive organs of *F. hepatica* showed the suitability of the material for cytological work. It is stated that the diploid chromosome number is 20. On entering the egg the sperm swells up, later appearing as a spongy mass outside the previously-formed spindle. Two equal-sized vesicular nuclei which appear within the egg later fuse and give rise to a cleavage nucleus. The role of the sperm appears to be merely that of activation.—S. Brian Kendall.

Stemmermann, G. N. (1953). **Human infestation with** *Fasciola gigantica*.—*Amer. J. Path.* **29,** 731-753. [Abst. from author's summary.] **488**

S. reported 5 cases of *F. gigantica* infestation in human beings. The fluke is normally parasitic in cattle and swine, but not in man, and is the commonest species in Hawaii.

Infestation in human beings is derived from the ingestion of raw watercress grown in areas where infected cattle are allowed to range freely.

Migratory and hepatobiliary phases of the disease occur. The former is marked by the production of granulomata, often in aberrant locations. In addition, mature flukes may be recovered at aberrant sites.

Parnell, I. W., Dunn, A. M. & Mackintosh, G. M. (1953). **Some observations on the helminth parasites of Scottish hill cattle.**—*Brit. vet. J.* **109,** 456-463. [Authors' summary modified.] **489**

Worm-egg counts on Scottish hill cattle have shown that nematodes in the alimentary tract of adults are unlikely to be sufficiently numerous to do harm, but that in young stock infestations may be sufficiently heavy to cause loss of condition. The hookworm, *Bunostomum phlebotomum*, is one of the commonest species. Hill cattle may be reservoir hosts of *Fasciola hepatica*.

Nickel, E. A. (1953). Ein Beitrag zur Biologie und Pathogenität des Geflügelhaarwurms Capillaria caudinflata (Molin 1858). [**Life-cycle and pathogenicity of** *Capillaria caudinflata*.]—*Berl. Münch. tierärztl. Wschr.* **66,** 245-248. [English summary.] **490**

*C. caudinflata* can be an important source of loss in young fowls. The worms invade the epithelium of the intestinal villi, but the histological changes are small in comparison with the frequent severe anaemia, emaciation, and often death, which may result from some toxin absorption. Control is difficult because earthworms (*Allolobophora caliginosa*) act as intermediate hosts.—M. L. Clarke.

Evans, A. D. & Lennox, M. (1953). **An outbreak of trichiniasis in Barry, Glamorgan. Improved technique for demonstration of trichinella in muscle.**—*Brit. med. J.* July 18th. 131-133. [Abst. from authors' summary.] **491**

An account of an outbreak affecting 25 people. The infection was introduced in sausage meat originating from a pig reared on a farm in Pembrokeshire; this county has been incriminated before, but on this occasion, for the first time, live *Trichinella* were demonstrated in rats and pigs from the suspected farm.

The clinical findings differed from the textbook accounts, and were similar to those described in recent years. Periorbital oedema was the main symptom, and this, combined with eosinophilia developing within 14 days, was in the authors' opinion pathognomonic of trichiniasis. Muscle pains were nearly always present, but gastro-enteritis occurred in only 16% of the cases.

The authors employed a technique involving both peptic and tryptic digestion of the muscle fibres and leaving the larvae still motile. In a comparison with Young's method, it revealed nearly twice as many larvae in rat muscle and in pig diaphragms.—A.S.

Gould, S. E., Van Dyke, J. G. & Gomberg, H. J. (1953). **Effect of X-rays on trichina**

**larvae.** — *Amer. J. Path.* **29,** 323-337. [Authors' summary modified.] 492

A dose of 750,000 r. filtered X-ray applied to *Trichinella* larvae *in vitro* caused death of all or nearly all larvae within 1 or 2 hours after irradiation. Subsequent reproduction of trichinella was largely prevented by exposing larvae *in vitro* to irradiation of 3,500 r; maturation was largely prevented by exposure to 5,000 or 6,000 r.

Pieces of trichinosed meat in thicknesses of 1·45 cm. were rendered non-infective to experimental rats when the meat was exposed to 15,000 r. This suggests that the dose of irradiation required to sterilize larvae of *Trichinella* in commercial quantities of pork may not be excessive.

Riek, R. F., Roberts, F. H. S. & O'Sullivan, P. J. (1953). **Further observations on the epidemiology of parasitic gastro-enteritis of cattle.**—*Aust. vet. J.* **29,** 122-128. 493

Studies previously reported [*V.B.* **23,** 2325] were continued and trials in additional regions of Queensland (Oakey on the Darling Downs, and Maleny near the coast in south eastern Queensland) were begun.

Seasonal fluctuations in egg counts followed the course recorded in previous reports. Data on fluctuations in *Cooperia oncophora* and *Nematodirus* spp. were available from the trials, particularly at Oakey where these species occurred in much greater numbers than in coastal regions. *C. oncophora* was the dominant species of the genus at Oakey but was rare in the trials near the coast where *C. punctata* and *C. pectinata* predominated.

Cattle developed resistance to *C. oncophora* and *Nematodirus* spp. soon after exposure to infestation. Resistance to *Nematodirus* spp. like that seen with *Bunostomum phlebotomum* resulted in complete elimination of the infestation.

Where severe overstocking occurred there were considerable increases in worm burdens of *H. contortus, Cooperia* spp., *Ostertagia ostertagi* and *Trichostrongylus axei* even in the absence of rain.

*B. phlebotomum,* common in coastal regions, was not recorded in the trial on the Darling Downs, and it is thought that rainfall was the limiting factor.—H. McL. Gordon.

Kates, K. C. & Turner, J. H. (1953). **A comparison of the pathogenicity and course of infection of two nematodes of sheep,** *Nematodirus spathiger* **and** *Trichostrongylus colubriformis,* **in pure and mixed infections.**—*Proc. Helm. Soc. Wash.* **20,** 117-124. [Abst. from authors' summary.] 494

Sublethal doses of larvae of *N. spathiger* and/or *T. colubriformis* were administered to 5 pure-bred, parasite-free Shropshire lambs. The latter was more pathogenic and more persistent than the former. The pathogenic effect of mixed infestations of the two species appeared to be more marked than of infestation with either alone.

Herlich, H. & Porter, D. A. (1953). **Experimental infections of calves with the nematode,** *Nematodirus helvetianus.*—*Amer. J. vet. Res.* **14,** 198-201. [Authors' summary modified.] 495

Experimental infestations with *N. helvetianus,* were set up in 5 calves from 5 to 9 months old by feeding infective larvae.

One 5-month-old calf given a few hundred larvae was unaffected. Two other calves, fed 27,000 and 140,000 larvae respectively, had gained 55% and 59% less weight than controls six weeks after infection; neither of these calves showed symptoms of being parasitized.

Two calves fed one million infective larvae each also showed retarded weight gain, a control calf gaining in six weeks 40 to 80% more weight than those infested. Six months from the date of infestation, the setback in weight was still apparent, though not so pronounced. During the 3rd and 4th weeks of infestation, the calves exhibited symptoms of diarrhoea, loss of appetite, and weakness.

*N. helvetianus* was most detrimental to calves during the prepatent period, as shown by the fact that 14 days after infection there was a marked retardation of weight gain in 4 infected calves; in 2 of these animals, clinical symptoms appeared at this time.

Kingsbury, P. A. (1953). *Nematodirus* **infestation—a probable cause of losses amongst lambs.**—*Vet. Rec.* **65,** 167-169. [Abst. from author's summary.] 496

A description of a disease of lambs which results in scouring and frequently in death. There is strong circumstantial evidence, though no definite experimental proof, that the chief cause is a heavy infestation with *Nematodirus* spp. The condition has been encountered on as many as 75% of farms in the eastern parts of the border region between England and Scotland.

Hexachlorethane has shown some value as a controlling agent where other anthelmintics have failed completely, and provisional recom-

mendations for its use as a preventive were given. An anthelmintic efficiency of above 40% should not be expected in practice and the curative, as opposed to preventive value, is therefore low, though still considerably higher than that of phenothiazine or copper sulphate-nicotine, which have been frequently recommended in the past.—A.S.

Rindfleisch-Seyfarth, M. (1953). Eine neue Behandlungsmethode der Syngamose (Luftröhrenwurmkrankheit). **[New treatment for *Syngamus* infestation.]**—*Berl. Münch. tierärztl. Wschr.* **66**, 185-186. **497**

The author recommended the placing of chickens infested with *S. trachea* for 10 min. in a box containing barium antimony tartrate powder, 25 g. of the powder being sufficient for the treatment of 50 birds.—M. L. Clarke.

v. d. Burg, W. B. (1953). **Lethal bleeding in the cranial cavity of deer (*Cervus elaphus*) caused by a nematode, belonging to the family of the Metastrongylidae.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 414-417. [In English. French and German summaries.] **498**

A report of lethal cranial haemorrhage in two deer, caused by a nematode, probably *Elaphostrongylus cervi*, which was present under the arachnoid membrane in the brain and in the spinal canal.—A.S.

Drudge, J. H., Wyant, Z. N. & Elam, G. W. (1953). **Continuous phenothiazine therapy for horses.**—*Vet. Med.* **48**, 306-310. **499**

Two horses that had been given 0·5–4 g. phenothiazine daily for 3 years and 2 g. doses for another year were run with other horses, their faeces and blood being examined monthly. When the two treated horses with two controls were slaughtered and worm counts were made, no symptoms or lesions attributable to the drug were found. Although worm counts were surprisingly high, egg counts were low or negative, female worms containing fewer eggs than those worms from controls.—John Seamer.

Wagner, O. & Bauer, F. (1953). Dermatitis verminosa durch freilebende Nematoden. **[Dermatitis caused by free-living nematodes.]**—*Z. Tropenmed. u. Parasit.* **4**, 235-242. [English summary.] **500**

Two hamsters developed scab-like lesions caused by larvae of *Rhabditis teres*. As the lesions could not be transmitted to clean animals, the authors suggested that predisposition, resulting from disturbance of natural resistance, is probably an essential factor for the development of the condition.—F.A.A.

*See also absts.* **323-324** (connexion between TB. and fascioliasis in cattle).

## SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Thordal-Christensen, A. (1952). To tilfaelde hos kvaeg af grønfarvede, multipelt forekommende nydannelser med fremtraedende infiltration med eosinofile celler (Chloromer). **[Two cases of green-coloured multiple neoplasms with pronounced infiltration of eosinophile cells (chloroma).]**—*Nord. VetMed.* **4**, 755-770. [In Danish. English and German summaries.] **501**

A detailed account of the distribution, and microscopic and macroscopic appearances of chloromas from 2 cows with multiple, green-coloured neoplasms showing pronounced eosinophile cell infiltration, seen at slaughter. In one case the udder was involved.

—R. B. Holcombe.

Götze, R., Ziegenhagen, G. & Merkt, H. (1953). Zur Diagnose der Leukose des Rindes. **[Diagnosis of leucosis in cattle.]**—*Mh. Tierheilk.* **5**, 201-211. **502**

The authors discussed the value of the blood picture in the diagnosis of leucosis in cattle. They gave a table setting out the w.b.c.-lymphocyte relationship in negative, positive and suspicious cases, and discussed its value in detecting clinical cases in which no symptoms are apparent.—E. A. Hirsch.

Moretti, B. (1953). Leucose des bovidés. **[Bovine leucosis.]**—*Bull. Off. int. Epiz.* **40**, May. pp. 172-180. [English summary.] **503**

A general description of leucosis in cattle.

Hereditary susceptibility to a form of leucaemia has been demonstrated in mice, and M. suggested that a similar phenomenon might be demonstrated in cattle also. He quoted certain field observations to support this view.—A.S.

Southam, C. M. & Epstein, J. D. (1953). **The effect of Russian encephalitis and other viruses on mouse leukemia.**—*Cancer Res.* **13**, 581-586. [Authors' summary modified.] **504**

Russian Spring-Summer encephalitis virus inhibited leucocytosis and organ infiltration in Ak4 mouse leucaemia. Survival time was not

affected. The Massachusetts strain of Newcastle disease virus, Uganda S virus, Anopheles B virus, Bunyamwera virus, and Theiler's G.D. VII virus had slight antileucaemic effect. Nine other strains of viruses had no detected effect upon this leucaemia.

KENZY, S. G. (1953). **Studies in avian neoplasia. IV. Natural transmission of tumor agents through the egg.**—*Amer. J. vet. Res.* **14,** 455-457. [Author's summary modified.] **505**

Chickens from an inbred line having a low (3·8%) incidence of lymphomatosis had an incidence of 29·3% of lymphomatosis when reared along with chickens from a stock which had an incidence of 41%.

Rous neutralizing antibodies (RNA) were present in 91% of birds hatched and reared with chickens from a stock which had a 45% incidence of RNA while no RNA were present in a control batch.

When eggs from a flock with a low (8%) incidence of lymphomatosis were hatched and the chickens reared in strict isolation only 1% developed the disease within 15 months.

When eggs from another flock with a high (37%) incidence of lymphomatosis were hatched separately and the chickens reared in strict isolation 36·8% died of the disease within 13 months.

DE RUYCK, R. (1953). Transmission du virus choriotrope au poulet adulte. [**Transmission of choriotropic virus in adult fowls.**]—*C. R. Acad. Sci. Paris.* **236,** 543-544. **506**

A virus isolated from a hydatiform mole [presumably from a human subject] became adapted to chick embryos and eventually capable of producing disease in adult fowls. The lesions produced consisted essentially of localized proliferations of the reticulo-endothelial system.—D. LUKE.

## NUTRITIONAL AND METABOLIC DISORDERS

POUNDEN, W. D. (1953). **Rumen function and health in young calves.**—*Proc. 89th Ann. Meet. Amer. vet. med. Ass. Atlantic City. June 23-26th.* 1952. pp. 40-43. Discussion pp. 43-44. **507**

Among groups of calves maintained for experimental purposes a high incidence of digestive disturbances was experienced. Under the particular conditions of husbandry rumen function was not established satisfactorily even by 3 months of age. It was found that hay-grain ratios of 4:1 to 3:2 promote desirable micro-organisms whereas excessive amounts of grain are inhibitory to them. When calves were penned separately out of contact with older calves certain rumen strains failed to become established. Inoculations of cud into the rumen was a reliable way of supplying the calves with a suitable rumen flora, provided the hay-grain ratio was correct. P. stressed the need for an adequate supply of suitable roughage at an early age.

He outlined feeding methods aimed at developing optimum rumen function and described methods of diagnosing inadequate rumen function and of obtaining samples of rumen contents.—D. LUKE.

ANON. (1953). **Profloran—a revolutionary new approach to correction of rumen dysfunction.** —*Jensal J.* August. pp. 4-6. **508**

A nutrient medium (formula not divulged) for ruminal micro-organisms is stated to have undergone satisfactory clinical trial. Cases treated were ruminal dysfunctions following metabolic disorders, post-surgical traumatic gastritis and stasis. The dosage recommended is 2 lb. daily.—JOHN SEAMER.

JACOBSON, N. L., KAFFETZAKIS, J. G. & HOMEYER, P. G. (1952). **The effect of aureomycin feeding on changes in weight and in body measurements of dairy calves.** — *J. Dairy Sci.* **35,** 1094-1100. **509**

A group of calves fed an aureomycin supplement, from 117 to 200 days old, increased in weight more rapidly than a control group not fed a supplement and another group fed a similar supplement from weaning to 116 days, which was then withdrawn.—R. A. HUCK.

LIBBY, D. A., GROSCHKE, A. C., EVANS, R. J. & BANDEMER, S. L. (1953). **Feeding of arsanilic acid to pullets.**—*Quart. Bull. Mich. agric. Exp. Sta.* **35,** 419-427. [Authors' summary modified.] **510**

Quantitative data on the deposition of arsenic in eggs and tissues of pullets as a result of feeding graded levels of arsanilic acid were obtained during a 17-week period.

The body weight of the pullets was not significantly affected by the use of this chemical, nor was egg production. The hatchability of fertile eggs was not influenced by the addition of arsanilic acid to the ration during the 11-week experimental period. Arsanilic acid in the maternal diet did not affect the early growth of chicks on a practical broiler mash. Accumula-

tion of arsenic in eggs and tissues was well below the levels allowable under the U.S. Federal Food and Drug Administration and was proportional to the amount included in the ration. Arsenic in the eggs and tissues was practically eliminated in a three-week depletion period.

WILSON, A. A. & EASTWOOD, B. (1953). **Experiences with the feeding of procaine penicillin to poultry.**—*Vet. Rec.* **65,** 665-668. **511**

In three experiments in which cockerels supplied with penicillin in their diet were compared with others given no supplement there was an improvement in growth of up to 10% in the former group at 16 weeks of age. In similar trials with turkeys an improvement of up to 25% was observed.—F.E.W.

I. NORDIO, C. B. (1953). Alimentazione con cipolle e anemia. **[Anaemia caused by the feeding of onions to animals.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 118-119. [English and French summaries.] **512**

II. NORDIO, C. B. (1953). Variazioni della resistenza globulare e del consumo di ossigeno delle galline durante l'alimentazione con " Allium cepa ". **[Blood picture and oxygen consumption in anaemia in hens caused by feeding onions.]**—*Ibid.* pp. 120-121. [English and French summaries.] **513**

III. NORDIO, C. B. (1953). Il quadro ematologico dei feti alla nascita nell'anemia da cipolle delle madri. **[Effect on the blood picture of the foetus of anaemia of pregnant animals caused by the feeding of onions.]**—*Ibid.* pp. 122-123. [English and French summaries.] **514**

I. When onions were fed raw or cooked, whole or sliced, as part of the diet or exclusively, to 2 goats, 4 dogs, 14 rabbits and 8 fowls, a characteristic anaemia was observed after 5 days' feeding in the dogs and fowls, after 6–10 days in the rabbits, and after 12 days in the goats.

II. In 4 fowls each fed daily 200 g. sliced onions with 50 g. mixed cereals, anaemia developed and there was a marked decrease in oxygen consumption by the birds. Fragility of r.b.c. remained constant.

III. Anaemia was produced in a pregnant goat, a pregnant bitch, and a pregnant rabbit by feeding them diets containing onions. The offspring were normal in health when born and the blood pictures were normal. Only the puppies developed anaemia, at 4 days, which N. suggested may have been due to changes in the milk of the anaemic bitch, or to abnormally low iron reserves in the puppies.—R.M.

BOLLE, W. (1953). Zur Vitamin-Eiweisstheorie des enzootischen Herztodes der Schweine. **[The vitamin-protein theory of causation of fatal syncope in pigs.]**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 610-615. [In German. English and French summaries.] **515**

B. suggested that fatal syncope in pigs is caused by a complex nutritional imbalance. The condition is associated with diets containing an excess of carbohydrates but insufficient animal protein and minerals.

In regions of Germany where the disease was once prevalent, it has almost disappeared since the introduction of more balanced diets.

—A.S.

BRAGG, D. D. (1953). **An attempt to determine the cause of curled or deformed tongues in young Beltsville White turkeys.**—*Poult. Sci.* **32,** 294-303. **516**

Five poults out of 2,442 examined after removal from the incubator were found to have the curled tongue condition. The incidence is greater in poults fed very fine mashes. The condition was not affected by the use of antibiotics in the feed, nor was it due to a deficiency of leucine, isoleucine or phenylalanine in the diet.—D. LUKE.

ENDER, F. & HELGEBOSTAD, A. (1953). **Yellow fat disease in fur bearing animals.**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 636-642. [In English. French and German summaries.] **517**

The authors produced yellow fat disease experimentally in 72 foxes, 28 mink and 60 ferrets by giving them a diet comprising fish proteins, low carbohydrate, and a relatively high proportion of polyethylene oils such as cod-liver oil or herring oil. The disease was not produced when the polyethylene oils in the diet were left out or replaced by beef fat.—A.S.

COLBORN, L. R. (1953). **Free fatty acids and rancidity in poultry feeding-stuffs.**—*Vet. Rec.* **65,** 579-580. **518**

C. described the occurrence in Kenya of nutritional encephalomalacia, rickets, reduced egg production, osteomalacia, and other symptoms in poultry fed rancid food. The free fatty acid content of the ether extracts of feeding stuffs was used as an estimate of their rancidity.

—W. H. PARR.

MCFARLAND, W. (1953). **Effect of high pyridoxine intake in cholesterol-fed chicks.**—*Arch. Path.* **55,** 503-505. **519**

A description of an experiment comparing

the development of atherosclerosis of the thoracic aorta in young fowls fed mash alone, mash containing cholesterol, or mash containing cholesterol plus pyridoxine.

Birds fed mash alone remained healthy: those receiving cholesterol alone developed a few small lesions, but those receiving cholesterol plus pyridoxine developed numerous, more extensive lesions.—A.S.

HAGEN, L. O. (1953). **Lipid dystrophic changes in the central nervous system in dogs.**—*Acta path. microbiol. scand.* **33**, 22-35. [In English.] 520

A description of clinical symptoms and lesions in two cases of lipoid dystrophy of the c.n.s. in dogs.

Deposits of complex lipoids were found in the neurone cells of the brain and of the retina. From their solubility and histo-chemical reactions, the lipoids appeared to be composed largely of phosphatides. There was pronounced gliosis of the cerebellum and a decrease in the number of Purkinje cells and of cells in the granular layer.

The lesions were compared with similar lesions in human beings. H. considered the condition to be identical with or closely related to amaurotic family idiocy, though it was not possible from two cases alone to demonstrate that the disease was hereditary.—A.S.

GROENEWALD, J. W. (1951). **The nutritional value of food yeast** (*Torula utilis*) **in pig rations.**—*S. Afr. J. Sci.* **47**, 283-285. 521

In a small feeding experiment using 3 groups of 3 12-week-old pigs the addition of both food yeast and carcass meal to a cereal ration gave better results in the growth of the pigs to bacon weight, and in food utilization, than the addition of either yeast or carcass meal alone. G. concluded that beneficial results may be expected from the inclusion of a small amount (3–5%) of food yeast as a supplementary protein provided that care is taken to ensure an adequate intake of calcium and vitamin A.
—J. T. DONE.

BROWN, D. C., READ, J. & WILLARD, H. S. (1953). **Slaked lime as a preventive of scours for whey-fed calves.**—*J. Dairy Sci.* **36**, 319-324. 522

Reconstituted whey can be substituted for whole milk in calf rations after the 2nd week of life. This diet tends to induce scours but a quarter teaspoonful of " slaked " lime daily controlled disease and normal growth resulted.
—JOHN SEAMER.

STEWART, J. (1953). **Grazing habits and trace elements.**—*Brit. J. anim. Behav.* **1**, 116-117. 523

For obscure reasons, cobalt deficient sheep selected pasture which had been top-dressed with 2 lb. cobalt sulphate per acre. They were indifferent to cobalt rich mineral mixtures or licks.—W. H. PARR.

ELY, R. E., DUNN, K. M., HUFFMAN, C. F., COMAR, C. L. & DAVIS, G. K. (1953). **The effect of methionine on the tissue distribution of radioactive cobalt injected intravenously into dairy calves.**—*J. Anim. Sci.* **12**, 394-401. 524

Paired calves were given toxic doses of cobalt intravenously, alone and preceded by 500 mg. methionine: they were slaughtered 2 min., 5 min. and one, 6, and 12 hours after injection and the distribution of cobalt in 26 tissues was determined. Although methionine prevented toxic symptoms, tissue distribution was little changed. The principal excretory pathways are apparently the liver, kidneys and lymphatic system.—JOHN SEAMER.

FIELD, H. I. (1953). **The influence of copper on the growth rate of cattle.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 566-571. [In English. French and German summaries.] 525

In two experiments, involving 12 and 27 cattle respectively, comparing cattle kept on a diet deficient in copper with cattle on an identical diet receiving adequate supplement of copper, the former gained an average of 936 lb. in 30 months, while the latter gained 1277 lb. The deficient animals showed no clinical signs of illness. F. recommended that deficient pastures should be dressed with copper sulphate in summer and that a copper supplement should be added to the fodder in winter.—A.S.

CORSICO, G. (1953). Xantinosi renale in un vitello. **[Xanthosis of the kidneys of a calf.]** —*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 206-208. [English and French summaries.] 526

Calculi composed of xanthine were found in both kidneys of an apparently healthy 2-month-old calf which was slaughtered.—R.M.

CHANDA, R. (1953). **The partition of carotenoids and vitamin A in the colostrum and milk of the cow and the goat.**—*J. agric. Sci.* **43**, 54-71. 527

The effects of winter and summer rations, number of lactations, and days since parturition were studied on the $\beta$ carotene, vitamin A

ester and vitamin A alcohol content of colostrum and milk of cows and goats. Heifers secrete more vitamin A in colostrum than do cows on the same ration, but not more β carotene. Vitamin A alcohol occurred in cow's milk and colostrum, but only in goat's colostrum. The carotene content of cow's milk was constant: the vitamin content was minimal at the 25th week of lactation.—JOHN SEAMER.

SCHOOP, G. (1953). Der Vitamin-A-Mangel als prädisponierender Faktor für Jungtierinfektionen. **[Vitamin A deficiency as a predisposing factor to infectious diseases in young animals.]**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 633-635. [In German. English and French summaries.] **528**

S. considered vitamin A deficiency to be perhaps the most important predisposing factor in bacterial infections of young animals. The deficiency arises in the foetal stage if the diet of the dam is deficient in the vitamin. The susceptibility of the young animal is related to the high permeability of its intestinal wall to bacteria. Pregnant animals should be given a vitamin supplement where necessary, and young animals thought to be deficient should be protected against infection by sulphonamides until the deficiency is made up.—A.S.

COHLAN, S. Q. (1953). **Excessive intake of vitamin A as a cause of congenital anomalies in the rat.**—*Science*. **117**, 535-536. **529**

When 100 female rats were fed 35,000 I.U. vitamin A from the 2nd or 4th until the 16th day after coitus, and killed at or near term, the number of litters carried to term was reduced from 88% to 10%. Of 74 offspring produced, 34 had gross anomalies in brain and skull development, usually with extrusion of the brain. Macroglossia, harelip, cleft palate and eye defects were also noted.—N. DEAN.

MADDOCK, C. L., COHEN, J. & WOLBACH, S. B. (1953). **Effect of hypervitaminosis A on the testes of the rat.**—*Arch. Path.* (*Lab. Med.*) **56**, 333-340. [Authors' summary modified.] **530**

Long-continued ingestion of moderate doses of vitamin A in young weaned rats elicits degenerative lesions of the testis, but in mature rats receiving similar dosages these lesions do not develop. Vitamin E given concurrently with vitamin A potentiates the degenerative change.

HVIDSTEN, H. (1952). E-vitaminet i husdyrernaeringen. **[Vitamin E in animal nutrition.]**—*Tidsskr. norske Landbr.* **59**, 194-205. **531**

Vitamin E deficiency, though uncommon, may arise from careless feeding, and a watch should be kept on dietary fats containing unsaturated acid. Symptoms are plainest in the young, but adult animals may show decreased fertility.—F. R. HARRIS.

NORDIO, C. B. (1953). Sui rapporti tra sulfamidici e sintesi microbiologica della vitamina $B_1$ nel rumine degli erbivori. **[Effect of the administration of sulphonamides to goats on the synthesis of thiamine by bacteria in the rumen.]**—*Atti Soc. ital. Sci. vet., Sanremo*, 1952. **6**, pp. 112-114. [English and French summaries.] **532**

Four sulphonamides were each administered by mouth to 2 goats for 5 days. The thiamine content of the rumen did not diminish as a result of treatment. Sulphathiazole appeared to augment the amount of thiamine in the rumen.—R.M.

SCHOFIELD, F. W. (1953). **The etiology of muscular dystrophy in calves and lambs.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 597-601. [In English. French and German summaries.] **533**

From his experience S. considered that a deficiency of phosphorus or of vitamin E was frequently the cause of muscular dystrophy in calves and lambs in Canada. Where both phosphorus and vitamin E were deficient, severe dystrophy resulted. Drought, severe exertion, and long winters in stable were also important in bringing on the disease in both calves and lambs, but the similar conditions observed in lambs and calves after long periods in stable, or after drought or severe exertion, might not be exactly comparable.—A.S.

FORENBACHER, S. (1953). Über die $B_1$-Avitaminose bei Pferden in Jugoslawien, mit besonderer Berücksichtigung der Rolle des Thiamins in der Pathogenese der Schachtelhalmvergiftung. **[Thiamine deficiency and *Equisetum* spp. poisoning in horses.]**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 615-620. [In German. English and French summaries.] **534**

F. drew a distinction between thiamine deficiency in horses on a diet lacking that vitamin, and a deficiency resulting from factors preventing its normal synthesis by the intestinal flora.

In Yugoslavia *Equisetum* species and bracken (*Pteris aquilina*), often present in hay, frequently cause thiamine-avitaminosis.—A.S.

SAATÇIOGLU, S. (1953). Rennbahnkrankheit der Pferde, Heilversuche mit C.-Vitamin. **[Effort**

**syndrome in racehorses, treated with vitamin C.]**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 629-630. [In German. English and French summaries.] 535

S. gave an account of the illness in 6 cases of effort syndrome in racehorses in Turkey. Outstanding symptoms were pyrexia, sweating, irritability, and a stiffness of the femoral, cervical and dorsal muscles. Later the animals developed a loose, wobbly gait.

Daily injections of 1,500 mg. of vitamin C proved curative in all cases after 3–10 days. —A.S.

Ludvigsen, J. (1953). **" Muscular degeneration " in hogs (preliminary report).**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 602-606. [In English. French and German summaries.] 536

For the purpose of his report, L. defined " muscular degeneration " in pigs as a condition in which affected muscles become pale or greyish in colour: they have a strong sour smell, become juicy, and are easily split into separate bundles.

Since 1948 he has made many observations on pigs sent to a large Danish bacon factory, and his experience suggests that the acute form of " muscular degeneration " in pigs resembles the fatal syncope of German authors. The observation that the disease is more frequently encountered in summer, when the thyroid gland is comparatively inactive, and that it can be produced experimentally by methyl-thiouracil blockage of that gland and cured by administering thyroxine, led him to conclude that the thyroid gland has an important influence on the condition.—A.S.

Holzworth, J. & Coffin, D. L. (1953). **Pancreatic insufficiency and diabetes mellitus in a cat.**—*Cornell Vet.* **43**, 502-512. [Abst. from authors' summary.] 537

The authors discussed previous reports of diabetes mellitus and pancreatic insufficiency in cats, and gave an account of their own experience with these conditions, including details of a case in which both occurred together.

Hall, W. T. K. (1952). **Effects of methyl-thiouracil on liver vitamin A, spermatogenesis and calcium metabolism of Merino rams.**—*Qd J. agric. Sci.* **9**, 301-316. 538

Approx. 2·5 g. methyl-thiouracil per 100 lb. body wt. was administered daily by mouth to Merino rams for 100 days. At the end of this period, mean thyroid weights were more than 4 times as great in treated rams as in controls. Serum calcium levels in treated rams were lower than in controls. Semen samples examined every three weeks showed no differences betwen groups.

Contrary to reports of other workers that thiouracil treatment adversely affects carotene conversion to vitamin A in rats, goats and sheep, there was no evidence of differences in liver vitamin A levels in treated and untreated rams. The authors discussed the significance of these results in relation to the effects of possible hypothyroidism in sheep under hot conditions in north-western Queensland.—R. L. Reid.

Harris, L. J., Bland, M. N., Hughes, R. E. & Constable, B. J. (1953). **Effect of A.C.T.H. and cortisone on vitamin-C metabolism and on the weight and composition of the liver in guineapigs and other species.**—*Lancet.* **264**, 1021-1024. 539

In young g. pigs given 4 mg. A.C.T.H. intramuscularly 4 times a day, vitamin C metabolism and the proportion of ascorbic acid to dehydroascorbic acid were not appreciably changed. The liver showed a striking weight increase, reaching 50% on the 10th day. This effect may serve as a method for hormone assay. The increase was due to water and glycogen, and later to protein. There was a fall in the percentage of fat, and little change in sulphydryl compounds. The weight fell sharply when dosage with A.C.T.H. was discontinued. Cortisone produced the same effect as A.C.T.H. In rats, chicks and mice there was little change in liver weight, but in rabbits the response was as in the g. pig.—N. Dean.

Scott, J. L., Jr. & Engel, F. L. (1953). **The influence of the adrenal cortex and cold stress on fasting ketosis in the rat.**—*Endocrinology*, **53**, 410-422. [Authors' summary modified.] 540

Treatment of normal rats with 5 or 10 mg. of cortisone acetate or hydrocortisone acetate daily inhibited ketosis and increased the blood sugar during a 5-day fast at 25° to 27°C. Treatment with 4 mg. of A.C.T.H. daily had no effect on fasting ketosis, although it increased the blood sugar and adrenal weight.

Fasting of rats during exposure to cold (4°C.) resulted in a significantly increased ketosis. Treatment of such rats with 5 or 10 mg. of cortisone acetate or hydrocortisone acetate or with 4 mg. of A.C.T.H. daily depressed the ketosis, but did not reduce it to the same low level as hormone treatment in unstressed animals. Blood sugar levels were higher than in untreated rats exposed to cold,

but tended to be somewhat lower than in hormone treated control rats.

Acclimatization to 4°C. for one month prevented ketosis on a subsequent fast, and blood sugar levels were maintained less well on fasting in acclimatized than in unadapted rats.

It was concluded that the over-all effect of adrenal hormone action is to inhibit ketosis.

## DISEASES, GENERAL

ANON. (1953). **[Veterinary findings and their practical application.]**—*Veterinariya, Moscow.* **30,** No. 6. pp. 3-7. [In Russian.] **541**

Some developments in Russian veterinary science were enumerated and failure to utilize many of them was criticized. Mention was made of vaccines and sera against foot and mouth disease, bradsot in sheep, caprine contagious pleuro-pneumonia, leptospirosis, Newcastle disease, Aujeszky's disease, septicaemia in calves and lambs, and other ailments not specified. Various apparatus and diagnostic and therapeutic preparations included those against piroplasmosis and trichomoniasis; the brucella allergen " Viev " for sheep, pigs and young cattle; the antiseptic stimulant " ASD " [*V.B.* **24, 571**], and a vitamin concentrate for certain metabolic disorders.

Prominence was given to the practice of raising calves under cold climatic conditions and to the treatment of a group of diseases affecting heavy milkers, details, however, not being given; here faulty management and feeding methods were found to account for calcium and vitamin D deficiencies and an excess of phosphorus.—F.A.A.

ANON. (1953). **Report of [U.S.L.S.A.] committee on transmissible diseases of swine.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 246-248. **542**

This report is based on information received from various States on current swine problems. Among conditions listed are vesicular exanthema which has been eradicated from 18 of the 29 States where it had become established, the enteritis complex which is regarded as a major problem, and oedema disease which was recorded in 18 States.—D. LUKE.

WILKINSON, G. T. (1953). **The pathology of navicular disease. I. The macroscopical pathological features of the disease.**—*Brit. Vet. J.* **109,** 38-42. **543**

Early navicular disease is characterized by bone discoloration. Erosions, adhesions and roughness of the tendon follow, while exostoses on the upper surface and replacement of laminar bone by granulation tissue are features of advanced cases.—E. J. L. SOULSBY.

WITMER, R., LÖHRER, J. & WIESMANN, E. (1953). Zur Ätiologie, Diagnose und Therapie der periodischen Augenentzündung (p.A.) des Pferdes. **[Aetiology, diagnosis and treatment of equine periodic ophthalmia.]**—*Schweiz. Arch. Tierheilk.* **95,** 419-439. [English, French and Italian summaries.] **544**

The authors investigated 24 cases of equine periodic ophthalmia, and confirmed the work of Heusser (*V.B.* **23,** 521), who showed that the disease is associated with infection with *Leptospira pomona* or *L. grippo-typhosa.* Blood serum and aqueous humour were examined by agglutination tests and by paper chromatography for leptospira agglutinins. In recently infected horses the agglutination titre of serum was higher than that of aqueous humour. In horses undergoing relapse or having eye lesions of long standing the agglutination titre of aqueous humour was higher than that of serum.

Twelve horses were treated with aureomycin by intraocular or subconjunctival injection of aqueous solutions; in most cases improvement of the eyes followed treatment.

—R.M.

NICHOLSON, J. A. (1953). **Demonstration of electrocardiograph recordings and readings.**—*Irish vet. J.* **7,** 122-128. **545**

A report of a demonstration of the use of a direct-writing portable electrocardiograph on a horse. N. described arrhythmia, heart block and auricular fibrillation as common in the horse, the lengthening of the QRS complex as uncommon, and inversion of the T wave as of no significance.—A. SEAMAN.

MATTESON, A. M., EBERT, E. F. & CASE, A. A. (1953). **The value of blood counts in traumatic gastritis.**—*Vet. Med.* **48,** 345-348. **546**

In traumatic gastritis, peritonitis and pleuro-peritonitis of cattle periodic and often daily increases or decreases of total white cells plus neutrophilic shifts to the left were found to be of diagnostic value.—E. A. HIRSCH.

AUSTVOLL, J. (1953). **Gut oedema in Norway (with film in technicolour).**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 620-623. [In English. French and German summaries.] **547**

The author gave a general description of the symptoms of oedema disease of pigs, stating that in his experience it can be checked if, at its first appearance, all unaffected animals are given a s/c injection of 100 mg. vitamin $B_1$ (aneurin hydrochloride) and 3 g. of phthalylsulphathiazole twice daily with the food for 2 or 3 days. He stated that oral dosage with slowly absorbed antibiotics is also curative, though parenteral administration has no effect.

He concluded that some living organism, probably a bacterium, causes the disease, and that vitamin $B_1$ may be destroyed by toxins in the alimentary canal of affected animals.

—A.S.

SMILEY, R. S. (1953). **Infectious atrophic rhinitis in Ohio.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 240-243; discussion pp. 244-245. 548

Infectious atrophic rhinitis of swine is now widespread in the U.S.A. Some workers consider that it was imported from Scandinavia in Landrace breeding stock. It is regarded as being highly infectious and may occur without visible nasal distortion.—D. LUKE.

ROSSOFF, I. S. & ABEL, W. (1953). **Bacitracin: its use in control and treatment of swine enteritis.**—*Vet. Med.* **48**, 369-370 & 375. 549

Bacitracin was found useful in the treatment of necrotic enteritis in swine. Prolonged oral administration produced no toxic side effects and absorption from the intestinal tract was negligible. It is compatible with many of the drugs used in treatment of enteric conditions in swine and is not destroyed by digestive enzymes.—E. A. HIRSCH.

NIELSEN, S. W. & POCOCK, E. F. (1953). **Chronic relapsing pancreatitis in a dog.**—*Cornell Vet.* **43**, 567-572. [Authors' conclusions modified.] 550

An account of illness in a dog which followed closely the pattern of chronic relapsing pancreatitis in man. The aetiology of this disease is still unknown and treatment is accordingly strictly palliative. The clinical diagnosis is extremely difficult as the symptoms of the attacks closely resemble those of acute poisoning, acute canine virus hepatitis, and acute leptospirosis. Therefore it will only be possible to diagnose pancreatitis in dogs at P.M. examination until more clinical information can be collected from future cases.

PIRTLE, E. C. & MCKEE, A. P. (1951). **An epizootic of unknown etiology in guinea pigs.**—*Proc. Soc. exp. Biol. Med.* **77**, 425-429. 551

The authors described an epidemic in g. pigs; there was general malaise with death in six days. Lesions were not constant; there were degenerative changes in the hippocampus and often meningeal haemorrhage.

Material from infected animals infected 17 out of 22 g. pigs. Inoculation of ten others with various foreign proteins, such as boiled milk and human serum, resulted in infection in eight cases.—R.M.

SMITH, E. W. & CONLEY, C. L. (1953). **Filter paper electrophoresis of human hemoglobins with special reference to the incidence and clinical significance of hemoglobin C.**—*Johns Hopk. Hosp. Bull.* **93**, 94-106. [Abst. from authors' summary.] 552

Using a simple apparatus for the electrophoresis of haemoglobin solutions on filter paper, haemoglobins A, S. C and F could be recognized and separated. The technique was used in a mass survey to determine the incidence of various abnormal haemoglobins in human beings.

LIEBOW, A. A. (1953). **The bronchopulmonary venous collateral circulation, with special reference to emphysema.**—*Amer. J. Path.* **29**, 251-289. [Author's summary and conclusions copied *verbatim*.] 553

In certain types of chronic disease of the lung [in human beings], notably in emphysema, the bronchopulmonary venous circulation is greatly expanded. Since the bronchopulmonary veins communicate at many points with the pulmonary veins, they provide a by-pass in the event of occlusion of the latter. In their expanded state, the bronchopulmonary veins constitute a shunt of significant size between the right and left auricles. The direction of flow is probably from left to right until the valves at the points of junction of the bronchopulmonary and azygos veins lose their competency—as is usually true in advanced emphysema. It is then possible for the flow to be reversed. Pressure differentials on the two sides, however, are ordinarily small. Thus, the volume and even direction of flow under various circumstances remain for further investigation. The mechanisms concerned in the development of the bronchopulmonary venous collateral circulation are not well understood, but changes in the respiratory pumping action that affect especially the truly pulmonary rather than the more protected bronchopulmonary venules may be of importance, as may the development of increased interstitial tissue and muscle in the diseased lung.

For an understanding of the circulation in pulmonary disease, consideration must be

given to expanded venous shunts between the right and left sides of the heart, as well as to the increased bronchial arterial circulation and to the anastomoses of the two arterial systems.

Liebow, A. A., Loring, W. E. & Felton, W. L. (1953). **The musculature of the lungs in chronic pulmonary disease.**—*Amer. J. Path.* **29,** 885-911. [Authors' summary copied *verbatim.*] **554**

In many types of chronic pulmonary disease, there occurs a remarkable hypertrophy and hyperplasia of muscle. Much of this is derived from several identifiable sources: (1) bronchi and more distal air spaces, (2) blood vessels, especially the longitudinal layer of the bronchial arteries, (3) lymphatics, (4) interstitial tissue not clearly associated with other structures. Muscle fibers from these sources may become commingled.

In vessels, the lumen may become completely obliterated as a consequence of muscular hyperplasia, thus abolishing a useless or even burdensome collateral circulation.

Hyperplasia of muscle is especially striking in some instances of pulmonary emphysema, in which the walls of the bullae contain masses of myoid tissue derived from all of the sources mentioned previously. Compaction of the residual tissue, occurring concurrently with the destructive process responsible for the development of the bullae, in part accounts for the abundance of muscle in the walls. The bronchioles leading to the emphysematous region may possess great collars of muscle and narrow lumina, perhaps producing or contributing an obstructive factor to the development of emphysema. Relaxation of this muscle by certain drugs may explain relief of symptoms in certain patients with this condition, but further study of its responses is required.

The fundamental mechanisms responsible for the muscular hypertrophy and hyperplasia are not fully understood. One element may be the effect of entrapment of these fibers at increased tensions, especially in tissue undergoing fibrosis.

Veenendaal, H. (1953). Mededelingen uit de oogheelkundige afdeling van de kliniek voor kleine huisdieren van de Rijksuniversiteit te Utrecht. **[Diseases of the eye in small animals.]**—*Tijdschr. Diergeneesk.* **78,** 662-679. [English, French and German summaries.] **555**

An account of clinical observations on a variety of conditions in "small animals", including: — entropion, ectropion, dermoid cysts, distichiasis, fatty degeneration of the cornea, exophthalmos, neoplasms, cataract (in a cat), congenital glaucoma (in rabbits), eye lesions of psittacosis in pigeons, inflammation of the cornea caused by the action of strong acid on the eye of a dog, and experiences in ophthalmology with some modern drugs.

—C. A. van Dorssen.

Ingram, J. T. (1953). **The treatment of eczema.** —*Lancet.* **265,** 149-151. **556**

Eczema is a catarrhal reaction of the skin provoked by an irritant influence arising from without or from within. Elucidation of the problem and removal of the cause may be sufficient treatment. Symptomatic treatment should be simple and rational.—W. R. Bett.

Cecchini, O. (1953). Osservazioni su due casi di liponecrosi nel bovino. **[Two cases of fat necrosis in cattle.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 198-202. [English and French summaries.] **557**

C. described the P.M. and histological features of necrosis of fat surrounding the abdominal organs in two apparently healthy slaughtered cattle.—R.M.

## POISONS AND POISONING

Nissim, J. A. (1953). **Physico-chemical properties and toxicities of different iron preparations.** — *Brit. J. Pharmacol.* **8,** 197-200. [Author's summary modified.] **558**

The physico-chemical properties of a number of iron preparations were investigated, and their toxicities compared by tests on mice. It is possible to arrange a graded series of iron compounds such that the $LD_{50}$ ranges evenly from 11 to 300 mg. Fe per kg.—A.S.

Holm, L. W., Wheat, J. D., Rhode, E. A. & Firch, G. (1953). **The treatment of chronic lead poisoning in horses with calcium disodium ethylenediaminetetraacetate.** — *J. Amer. vet. med. Ass.* **123,** 383-388. [Abst. from authors' summary.] **559**

Four horses, chronically sick from lead poisoning, were treated successfully with the calcium disodium salt of ethylenediaminetetraacetic acid, diluted with saline to make a 2% soln. and administered by the i/v drip method at a level of 1·0 g./30 lb. body wt. At the rate of 60 to 80 drops per min., no untoward effects were noted.

Anon. (1952). **X-disease.**—*Tex. vet. Bull.* **14**, No. 7. pp. 1 & 3. **560**

A clinical note on hyperkeratosis in cattle. —K. G. Towers.

Ely, R. E., Underwood, P. C., Moore, L. A., Mann, H. D. & Carter, R. H. (1953). **Observations on lindane poisoning in dairy animals.**—*J. Amer. vet. med. Ass.* **123**, 448-449. **561**

Of 240 cattle inadvertently sprayed with higher than recommended concentrations of a wettable powder containing 25% lindane (γ-isomer of benzene hexachloride), 11 developed symptoms of poisoning such as mild inappetence, decreased milk production, incoordinated movements, and muscular twitching, 6–24 hours after spraying and 5 died with violent convulsions.

The body fat of the animals that died contained 7 to 205 p.p.m. of lindane. On the day following spraying, milk from three of the cows contained up to 3·5 p.p.m. of lindane.—F.E.W.

I. McGee, L. C., Reed, H. L. & Fleming, J. P. (1952). **Accidental poisoning by toxaphene. Review of toxicology and case reports.**—*J. Amer. vet. med. Ass.* **149**, 1124-1126. **562**

II. Anon. (1952). **Pharmacologic properties of toxaphene, a chlorinated hydrocarbon insecticide.**—*Ibid.* 1135-1137. **563**

I. The authors drew attention to the danger of toxaphene to people who use it without appreciation of the hazards.

He gave some case histories, including those of three fatalities in young children who died in convulsions after eating toxaphene concentrate. Severe sickness also occurred in people after eating vegetables sprayed with toxaphene.

II. A summary of the pharmacology and toxicology of toxaphene, as learnt from animal experiments. Toxaphene is a convulsant and the specific anticonvulsant drugs are the best antidotes.—J. Edwards.

Costa, P. J. & Bonnycastle, D. D. (1953). **The effect of ' agene-induced ' convulsions on adrenal steroid excretion in normal and castrate dogs.**—*J. Endocrin.* **9**, 76-89. [Authors' summary modified.] **564**

A study of the excretion of urinary 17-ketosteroids and reducing corticoids was carried out in male dogs during exposure to convulsant doses of ' agene-treated ' zein. A decrease in the excretion of urinary 17-ketosteroid in dogs fed the substance occurred before and during the convulsive periods. Dogs which survived the convulsions showed a decrease in corticoid excretion beginning with the first day of " agene " treatment. Animals which ultimately died exhibited first an increase in urinary corticoid excretion (first " pre-fit " day), and then a decrease. The same patterns of reaction were noted in castrate animals.

The study indicated that " agene " intoxication produces an imbalance in adrenocortical steroid excretion: this imbalance is different from that expected after acute stress, and seen following exposure to some other convulsant agents.

Murnane, D. (1953). **The toxicity of *Atalaya hemiglauca* (" Whitewood ") for horses.**—*Aust. vet. J.* **29**, 188-190. [Abst. from author's summary.] **565**

Nine horses born and bred in Victoria were given, at several dose rates in their daily ration, the dried leaves and dried fruit of *A. hemiglauca* collected in the Kimberley district of Western Australia. Up to 190 lb. of dried leaves were consumed over a period of approx. 6 months without the production of toxic effects, but the dried fruit when consumed in quantities as small as 0·5 oz. daily proved lethal in 179 days. A higher dose rate of the dried fruit proved lethal in a shorter time. The highest dose rate was 6 oz. daily which proved lethal in three days, after 1 lb. 2 oz. had been consumed.

Although the fruit of the plant was found to be highly toxic to horses the results of the experiment still did not reveal what, if any, association there may be between the consumption of the plant and the occurrence of Kimberley horse disease.

Louw, P. G. J. (1952). **Transvaalin, a cardiac glycoside isolated from *Urginea burkei*, Bkr. (Transvaal slangkop).**—*Onderstepoort J. vet. Res.* **25**, No. 4. pp. 123-133. [Author's summary modified.] **566**

A cardiac glycoside, transvaalin, a substance of molecular formula $C_{36}H_{52}O_{13}$, was extracted by alcohol from the tissues of *Urginea burkei*. The lethal effect of transvaalin on rats was comparable with that of scilliroside when administered *per os* or injected intraperitoneally. The m.l.d. for rats, by the oral route, was 40 mg./kg.

Hydrolysis of transvaalin yielded scillaridin A, $C_{24}H_{30}O_3$, and scillabiose, from which it appeared that transvaalin must either be isomeric with scillaren A, or a very stable complex of scillaren A and a substance toxic to rats, *e.g.* scilliroside.

Fractionation of transvaalin with chloro-

form-butanol yielded no scilliroside or other rat-poison, while the activity of transvaalin in rats and frogs remained unchanged, thereby contradicting the theory that it is a complex of scillaren A and a substance toxic to rats.

The isolation of small quantities of an amorphous water-soluble poisonous principle from *U. burkei,* was reported.

Dougherty, R. W. & Christensen, R. B. (1953). *In vivo* **absorption studies of hydrocyanic acid of plant juice origin.**—*Cornell Vet.* **43,** 481-486. **567**

The authors extracted separately, by pressure, juices from birdsfoot trefoil (*Lotus corniculatus*), alfalfa (*Medicago sativa*), Ladino clover (*Trifolium* sp.), and orchard grass (composition not given). Up to 1·5 l. of each juice was administered by stomach tube or by rumen fistula to sheep; only small numbers were used. Only the juice of *L. corniculatus* proved toxic, and a dose of 300 ml. was sufficient to kill a sheep. The same dose of this juice freed from HCN caused no symptoms. The authors discussed the problem of HCN poisoning by green plants in ruminants.—R.M.

Smythe, R. H. (1953). **The toxic toad.**—*Vet. Rec.* **65,** 468. **568**

S. related his clinical experience of dogs which developed vomiting fits and varying degrees of cardiac failure after biting toads, or holding them in their mouths. In a few extreme cases the dogs died, but more normally cardiac failure led to a fainting condition best treated by keeping the animal warm and administering adrenaline.—A.S.

Baker, H. R. & Jacquette, D. S. (1953). **Observations concerning the " hemorrhagic syndrome " in poultry.**—*Proc. 25th Ann. Meet. N.E. Conf. lab. Wkrs Pullorum Dis. Contr.* June 16 & 17. pp. 2 (no pagination). [Mimeographed.] **569**

Out of a total of 20,000 chicks 1,500 died following intestinal coccidiosis and treatment with sulphaquinoxaline. A " haemorrhagic syndrome " is stated to be appearing in an increasing number of flocks. Its aetiology remains unknown. It is stated that the condition has been observed in flocks which have not been treated with any drugs for coccidiosis.

[The condition appears to be similar to that described by Davies & Kendall [*V.B.* **23,** 1869] as the result of treatment with sodium sulphaquinoxaline.]—S. Brian Kendall.

*See also abst.* **534** (*Equisetum* poisoning).

## PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

Clark, R., Malherbe, W. D. & Weiss, K. E. (1953). **Studies on the effects of repeated blood replacement with dextran and plasmosan in dogs.**—*J. S. Afr. vet. med. Ass.* **24,** 87-95. **570**

In dogs given either of the two plasma substitutes " dextran " or " plasmosan " at weekly intervals after bleeding, there was no interference with liver or kidney function and, apart from an increased red cell sedimentation rate, blood changes were not significant. Injections of plasmosan caused repeated shock of 1–2 hours' duration, manifested by clinical signs and hypotension unrelieved by adrenaline. A similar syndrome occurred following infusion of histamine. Premedication with anti-histaminics prevented plasmosan shock which may be due to a histamine-like substance in dogs.

—John Seamer.

Dorogov, A. V. (1951). **[Tissue preparation " ASD " in veterinary practice.]**—*Veterinariya, Moscow.* **28,** No. 11. pp. 49-53. [In Russian.] **571**

" ASD " (Antiseptic Stimulant Dorogov) is a preparation made of tissue of animal, vegetable and bacterial origin [details not given] and was developed during 1948-50. It is claimed to be a " biological stimulant " possessing general healing properties against various types of diseases. " ASD-fraction 2 " is a volatile alkaline liquid, of a peculiar odour, easily soluble in water; it is used *per os* in a 5% aqueous solution, intravenously in a 10–20% aqueous solution or a saline solution, and externally in 15–20% concentration. " ASD-fr. 3 " is a thick, dark liquid not mixing well with water but easily with alcohol or animal, vegetable and mineral fats.

It is stated that in trials this product was found to be useful in:—strangles, foot rot in sheep, equine epizootic lymphangitis, Johne's disease, broncho-pneumonia in pigs, induced brucellosis in sheep, endometritis, ovine contagious agalactia, *Dictyocaulus* infestation, *Eimeria* infection in chicks and salmonella infection in young animals, retention of the

placenta, rheumatism in pigs, skin diseases, atony, bloat, general debility, traumatic lesions etc.—F.A.A.

MEDVEDEV, I. D. (1953). **[Therapy with an emulsion of animal tissue. (Symposium).]**—*Veterinariya, Moscow.* **30,** No. 6. pp. 43-44. [In Russian.] 572

M. reported the experiences of 5 authors who prepared emulsions or ointments [details given], each made up from a combination from number of the following tissues from cattle:—liver, spleen, kidneys, heart, lymph nodes, testicular tissue and skin [in this case, young cattle]. The preparations were either injected s/c or smeared on to lesions in horses, cattle and pigs with symptoms of one of over 15 diseases, it is stated, with good results.—F.A.A.

KANEGIS, L. A., TONELLI, G. & FALK, H. (1953). **Aureomycin milk and serum concentrations in dairy cows.**—*J. Dairy Sci.* **36,** 152-155. 573

The authors found that if, after morning milking, the udder was infused with 400 mg. of an ointment containing 6% aureomycin, a high level of the antibiotic was maintained in the milk for a least 48 hours. The max. conc. of aureomycin in the blood (between 0·1 and 0·8 $\gamma$ per ml.) was reached in 12 hours, indicating that aureomycin was absorbed through the mammary tissue.—A.S.

GRAY, J. D. (1953). **Some effects of chloramphenicol in the gut.**—*J. Hyg. Camb.* **51,** 322-329. [Author's summary modified.] 574

G. described a method for the estimation of chloramphenicol in faeces and bile in human patients.

The bile was found to contain high concentrations of the antibiotic but the faeces small amounts. This suggested that the faecal concentration is dependent on the biliary supply.

The action of chloramphenicol on the gut flora appeared to vary in individual cases, according to the dosage. When there was complete suppression of the coliform organisms, yeasts (*Candida albicans*) predominated. G. drew attention to the possibility of intestinal moniliasis following unrestricted use of the antibiotic.

He suggested an explanation of "relapses" in patients with typhoid fever treated with chloramphenicol, and discussed the possible effect of the drug on immunity response. He suggested that the carrier state following typhoid fever can only be checked by clearing the gut as well as the gall bladder of *S. typhi.*

LOVELL, R. R. H., SCOTT, G. B. D., HUDSON, B. & OSBORNE, J. A. (1953). **The effects of cortisone and adrenocorticotrophic hormone on dispersion of bruises in the skin.**—*Brit. J. exp. Path.* **34,** 535-541. [Authors' summary slightly modified.] 575

In man, the dispersion of bruises in the skin is delayed by treatment with cortisone and ACTH and in Cushing's syndrome. In guinea pigs it is delayed by cortisone. Histological studies indicate that it is unlikely that the effect can be attributed to impairment of macrophage activity. The effect may be due to impaired lymphatic removal of erythrocytes or to altered resistance to their dispersion through the ground substance of connective tissue.

WILLIAMSON, M. B. & FROMM, H. J. (1953). **Utilization of sulfur amino acids during healing of experimental wounds.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 329-333. [Authors' summary slightly modified.] 576

Wounded rats, injected with L-methionine-$S^{35}$, accumulated radio-sulphur in wound tissue, even when the $S^{35}$ content of the other tissues was decreasing. The largest part of the $S^{35}$ in the wound tissue appears as cystine-$S^{35}$. The rate of deposition of cystine in the regenerating wound tissue is greater than that of methionine. The rate of healing (as measured by the healing index) is a function of the cystine content of the wound tissue.

CELLA, F. & DOZZA, G. (1953). Sull'impiego del curaro negli equidi. **[Action of curare in the horse.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 236-243. [English and French summaries.] 577

The authors studied the action of *d*-tubocurarine chloride when administered by i/v injection to 4 horses, 3 mules and a donkey, either alone or in combination with barbiturates. Dosage of the drug was 20–30 mg. for the first 100 kg. body wt., and 4–5 mg. for each additional 100 kg. body wt. An apparatus for artificial respiration was found to be indispensable in cases where the respiratory muscles were paralysed by the drug.—R.M.

LARSON, L. L. (1953). **The internal pudendal (pudic) nerve block for anesthesia of the penis and relaxation of the retractor penis muscle.**—*J. Amer. vet. med. Ass.* **123,** 18-27. 578

L. described in detail the technique for internal pudic nerve block in the bull. In 34 out of 54 trials on 20 different bulls complete anaesthesia of the penis was obtained, and adequate anaesthesia in the remainder of the bulls.—G. V. LAUGIER.

*See also absts.* **310-312** (antibiotics in mastitis); **313** ("ASD"); **315** (effect of certain drugs on staphylococci); **329** (isonicotinic acid hydrazide); **331-333** (action of antibiotics on *Pf. whitmori*); **335** (swine erysipelas); **339** (goose influenza); **340** (white scours); **362** (footrot); **374** (bactericidal action of milk); **380** (trypanosomiasis); **386** (nitrofuran compounds for blackhead); **387** (coccidiosis and blackhead); **390** (coccidiosis); **391** (*B. bovis* infection); **393** (anaplasmosis); **456** (chronic respiratory disease in pullets); **466** (carbomycin (magnamycin) in virus and rickettsial infections); **467** (phenanthridinium compounds); **480** (benzene hexachloride); **481** (toxaphene); **509** (aureomycin supplements for calves); **511** (penicillin in the ration of poultry); **532** (sulphonamides and thiamine synthesis in goats); **559** (treatment of poisoning); **561** (lindane poisoning); **562-563** (toxaphene poisoning); **599-600** (antibiotics in semen diluents).

## PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

KOROPOV, V. M. (1953). **The importance of the teaching of I. P. Pavlov for the development of veterinary science.**—*Proc. XVth Int. vet. Congr. Stockholm*, 1953. **1**, Pt. 1. 555-565. [In English. French and German summaries.] **579**

K. defined Pavlov's theory of "neurism", a conception that the internal organs of the animal body are controlled by the c.n.s. to a much greater extent than is normally held to be the case.

At the time of his death Pavlov considered that the c.n.s. plays as great a role in controlling the vital processes as it does in determining the relationship of the animal to its external environment. He paid particular attention to digestion, and K. mentioned experiments emphasizing the role of the c.n.s. in this process and illustrating Pavlov's "theory of interoceptors". Other experiments, including some on the therapy of certain diseases by sleep, were also included, all illustrating the influence of the c.n.s. on the metabolic processes.

By applying Pavlov's principles, K. claims that it is possible to change the temperament of animals, improve husbandry techniques, and increase natural resistance to disease.—A.S.

CHRISTIE, G. S. & JUDAH, J. D. (1953). **Intracellular distribution of enzymes.**—*Proc. roy. Soc.* Ser. B. **141**, 420-433. [Authors' summary copied *verbatim*.] **580**

The localization of enzymes in cells may be studied by the differential centrifugation of tissue homogenates. This method has been used to study the distribution of L-malic and L-glutamic dehydrogenases, choline oxidase, adenosine triphosphatase, and also of the nucleic acids and nitrogen between the fractions of the homogenate.

L-glutamic dehydrogenase is entirely mitochondrial, and malic dehydrogenase is shared almost equally between the mitochondria and the supernatant, although the true mitochondrial activity is not apparent unless unmasked, e.g. by water disruption. In the absence of this precaution intact mitochondria show only a small proportion of the activity of the whole homogenate. Choline oxidase is almost entirely mitochondrial, and adenosine triphosphatase has a large representation in all the particulate fractions. In our experiments we have found that the ribonucleic acid content of the mitochondria is higher than previously reported.

Distribution studies of enzymes are misleading unless it can be shown that the methods employed are valid for all the fractions studied, and our evidence shows that serious errors of interpretation may arise unless more than one method of determination is used. In particular, the physical state of the mitochondria affects their apparent enzyme content, as shown by the investigation of malic and glutamic dehydrogenases by manometric and optical methods. This anomaly is due to an 'accessibility barrier' or 'permeability barrier' present in intact mitochondria which hinders the entry of coenzyme I.

In an integrated system composed of several enzymes, the rate of the whole reaction may be limited by the rate of any one of the intermediate steps. Thus intact mitochondria fail to develop their maximum oxygen uptake with several substrates unless a continuous supply of phosphate acceptor is ensured. Otherwise the rate of transfer of phosphate limits the whole reaction, reducing the apparent activity of the mitochondrial fraction relative to that of the whole homogenate, and hence the apparent distribution of enzyme.

Similarly, the activity of the choline oxidase of the mitochondrial fraction is more sensitive to pH changes than that of the whole homogenate so that at pH 6·8, 80% of the homogenate activity may be recovered in the mitochondria, whereas at pH 7·8, the recovery is only 50%. At pH 7·8, full activity of the mitochondria, and a recovery of over 80%, may be achieved by the addition of coenzyme I.

Derrick, J. B. & Collip, J. B. (1953). **Further studies on a pituitary factor with specific influence on metabolism.**—*Canad. J. med. Sci.* **31,** 117-125. 581

Preparations from the entire pituitary glands of beef slaughter cattle, after elimination of known hormones, produced a significant rise in the respiratory quotient in fasting rabbits. The R.Q. values in normally fed rabbits were lowered. There was usually an increase in the metabolic rate.—R. Gwatkin.

Calisti, V. (1953). Sulla quantità e sulla composizione del latte di mammella deafferentata di pecora. [**Effect of section of the afferent nerves to the mammary gland in ewes on the quantity and the composition of milk.**]—*Nuova Vet.* **29,** 40-44. 582

Section of the afferent nerves to the mammary gland of sheep resulted in reduction in the quantity and improvement in the quality of milk. No histological changes were observed in the udder.—I. W. Jennings.

Hansard, S. L., Butler, W. O., Comar, C. L. Hobbs, C. S. (1953). **Blood volume of farm animals.**—*J. Anim. Sci.* **12,** 402-413. 583

Using labelled red cells the authors determined the blood volume of sheep, pigs, cattle and donkeys. In fattening pigs, the blood volume per unit body wt. decreases with increase in wt.—John Seamer.

Lambert, P. P., Gregoire, F., Naets, J. P. & de Heinzelin de Braucourt, C. (1953). **Effects of ACTH on hemoglobin excretion in normal dogs.**—*Acta med. scand.* **145,** 432-446. [In English.] 584

The excretion of haemoglobin by the kidneys of normal dogs was found not to be influenced significantly by A.C.T.H.

In six dogs the hormone caused an increase and in six a decrease.—J. Edwards.

Goldwasser, R. & Shelesnyak, M. C. (1953). **A syringe carrier and egg clamp for intravenous inoculation of chick embryo.**—*Science.* **118,** 47-48. 585

The syringe carrier rotates in the vertical plane and can be raised, lowered, extended or retracted by a pair of worm-driven screws. The egg clamp includes an illuminator and the use of these two appliances much reduces mortality resulting from hand-tremors.—A. Seaman.

Keilin, D. (1953). **Position of haems in the haemoglobin molecule.**—*Nature, Lond.* **171,** 922-925. 586

K. used experimental evidence to dispute the theories of globin-embedded haem and steric hindrance. He suggested that haems are attached to globin by iron and porphyrin linkages.—John Seamer.

Lippay, F., Mitchell, G. G. & Irving, E. (1953). **Rhythmic activity of the isolated mammalian spleen.**—*Aust. J. exp. Biol. med. Sci.* **31,** 267-272. [Abst. from authors' summary.] 587

The authors stated that in the isolated mammalian spleen there were no spontaneous rhythmical contractions comparable with those seen in blood vessels. Under the influence of certain drugs, particularly adrenaline, rhythmic contractions were, however, noticeable. It was suggested that rhythmical changes in the volume of the spleen *in situ* are not caused by contraction of the splenic capsule but may result from rhythmical circulatory changes within the splanchnic area.

Walmsley, R. (1953). **The development and growth of the intervertebral disc.**—*Edinb. med. J.* **60,** 341-363. [Author's summary modified.] 588

W. gave a brief summary of the formation and development of the membranous vertebral column in man. It is considered that an intervertebral disc and the parts of the adjacent vertebrae developed from the same sclerotome constitute a "functional unit". The perichordal disc is a band of densely cellular tissue which surrounds the notochord. It is derived from the corresponding sclerotomes of the right and left sides and in conjunction with the notochord forms the intervertebral disc. The annulus fibrosus is developed from the peripheral part of the perichordal disc and has an inherent quality of self-differentiation; the pattern of its laminae is intricate. The nucleus pulposus is first represented by an aggregation of notochordal cells in the intervertebral region. The enveloping cuff of perichordal disc tissue contributes to the formation of the nucleus pulposus. The notochordal cells show early senescence; they commence to degenerate in the sixth month of foetal life and have entirely disappeared by the tenth year. The gelatinous material of the young nucleus pulposus is gradually replaced by fibro-cartilage which shows a progressive maturation with age.

The appearance of secondary segmental aggregations of the notochordal cells before the formation of the nucleus pulposus is considered as an inherent quality of self-differentiation within the notochord. The manner of ossification of the body of a vertebra is similar in its essentials to the ossification of the diaphysis of a long bone. The restriction of the upper and

lower epiphyses to the periphery of the body is associated with the nutrition of the intervertebral disc which is an avascular structure.

The intervertebral discs in which the greatest adaptive changes occur after birth are in the regions of the cervical and lumbar compensatory curvatures; the changes incited in the annulus fibrosus of the lumbar intervertebral discs would appear to test to the maximum the adaptive qualities of the disc.

GRAHAME, T. (1953). **The pelvis and calyces of the kidneys of some mammals.**—*Brit. Vet. J.* **109,** 51-55. **589**

Casts of the intra-renal expansion of the distal end of the ureter of the camel and the deer resembled those of the dog, cat and sheep, whereas specimens from the bear resembled that of the ox. Although more complex, a similar, but not necessarily close, resemblance to the latter type was found in the casts from the sea-lion, seal and bottle-nosed whale. The article is illustrated with 14 figures.—R. N. SMITH.

BIGNARDI, C. (1953). Lo studio istologico dei mucopolisaccaridi epiteliali alla luce delle moderne tecniche e reazioni istochimiche. **[Histological study of mucopolysaccharides of epithelium.]**—*Atti Soc. ital. Sci. vet. Sanremo,* 1952. **6,** pp. 19-43. Discussion pp. 43-44. **590**

An account of the morphology and methods of staining of mucopolysaccharides of epithelial tissues, with special reference to domestic animals.—R.M.

*See also abstr.* **375** (role of bacteria in the digestive tract of herbivores); **376-378** (ruminal flora); **657** (book, bile pigments).

## PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION.

NAVAS, E. F. (1953). Impresiones profesionales de España. **[The veterinary services in Spain.]**—*Zooiatria, Chile.* **11,** 23-34. **591**

An impression of the veterinary profession and the livestock industry in Spain, written by a Chilean delegate to the International Congress of Zootechny in Madrid, 1951. N. was impressed by the National College of Veterinary Science at Saragossa, and by the veterinary faculties at the University of Madrid and at Cordoba.

Livestock throughout the country comes under the administration of the " Direccion general de Ganaderia ", a branch of the Ministry of Agriculture: directly under its control are the Institute of Animal Biology, concerned with research into bacteriology, pathology and zootechny, and the Institute of Artificial Insemination.

The Army Veterinary Service has a central laboratory equipped to investigate problems of nutrition and bacterial infection, and to produce sera and vaccines for the Army.

There are 3 main types of abattoir in Spain —the municipal abattoirs of certain cities, others, owned by private firms, which provide meat for large provincial areas, and, lastly, the great industrial abattoirs which supply the canning industry and the meat trade at large.—A.S.

THEILE. (1952). Zadania i organizacja urzedów zdrowotności zwierząt w niemieckiej republice demokratycznej. **[Organization of veterinary services in the East German Republic.]**—*Méd. vét., Varsovie.* **8,** 503-504. **592**

The Veterinary service in the East German Republic comprises five divisions under the Ministry of Agriculture. Little further information is given in this article.—J. R. MITCHELL.

ANDRIANOV, I. M. (1953). **[Development of veterinary services in China.]**—*Veterinariya, Moscow.* **30,** No. 9. pp. 9-10. [In Russian.] **593**

The Second Animal Husbandry Conference of North-East China was held in April 1950 when the first 5-year agricultural plan was inaugurated and a government veterinary service started, the personnel being drawn from recently established veterinary schools and the Veterinary Faculty at the Agricultural Academy. With the increase of crop area in the last 3 years the number of livestock had also increased and it was urged that the peasantry be taught the rudiments of good management, especially in the rearing of young stock to increase numbers and improve quality. Some broad details were given as to the particular species of domestic animals each province was to concentrate on, according to local conditions. Much attention is now being paid to the control of disease; the amounts of biological and other preparations made available by an increasing number of biochemical laboratories, was given. During 1949-51 in N.E. China 10 million animals were vaccinated against anthrax, 2 million against other infections and the use of tuberculin tests has been inaugurated. The author stated that mange had been largely

eliminated. Horses, mules and donkeys when sold or transported are now subject to inspection, mallein tests being also often made. Regulations for meat inspection and transport have been drawn up. Veterinary cadres have been sent to Tibet.—F.A.A.

*See also abst.* 346 (relationship between brucellosis in cattle and infected milk).

## LIVESTOCK HYGIENE

SAINSBURY, D. W. B. (1953). **The ventilation and thermal insulation of piggeries.**—*Agriculture, Lond.* **60,** 210-217. 594

A general discussion of methods of conserving heat in piggeries by the use of building materials of low thermal conductivity and by the avoidance of draughts and inefficient ventilation. Tentative standard ventilation rates were proposed and details given of how they may be achieved in practice.—J. T. DONE.

HALLS, L. K., SOUTHWELL, B. L. & KNOX, F. E. (1952). **Burning and grazing in coastal plain forests. A study of vegetation and cattle responses to burning frequency in longleaf-slash pine forests of Georgia.**—*Bull. Ga. cst. Pl. Exp. Sta.* No. 51. pp. 33. 595

The area studied was divided into eight 50-acre sections. Annual burning was carried out as follows on each of two sections:—(1) entire area, (2) alternate halves, (3) one-third in rotation. Two control areas were left unburned. Six cattle grazed each section. Weight gains were greater in animals from sections that had been burned.—C. C. BANNATYNE.

*See also absts.* 309 (milking shed hygiene and mastitis); 523 (grazing habits and trace elements); 639 (grazing behaviour of cattle).

## REPRODUCTION AND REPRODUCTIVE DISORDERS

ANON. (1953). **The Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination, Copenhagen, July 7-11, 1952. Final report.** pp. 156. Copenhagen: Kandrup & Wunsch. 596

Papers presented and discussed were: Thibault, C., Fertilization and early stages of embryonic development in mammals; Walton, A., The survival of spermatozoa *in vitro* and the measurement of motility; Asdell, S. A., A regional approach to problems of fertility and breeding efficiency in dairy cattle; Laing, J. A., Early embryonic mortality; Anderson, J., The examination of semen and its relationship to fertility; Sjollema, P., *Vibrio fetus* infection in cattle and its influence on fertility; Bendixen, H. C., Infertility programme of F.A.O.; Bonadonna, T., Problems concerning the international exchange of semen.

[These papers are indexed separately in *Index Veterinarius* and abstracts of some of them will appear in this Bulletin.]—E.G.

GAGLIARDI, P. (1953). Di una particolare sterilità della regione romagnola per causa alimentare. **[Sterility in cows caused by the feeding of sugar beet.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 165-166. [English and French summaries.] 597

G. described sterility during the period October–April in cows in two provinces of Italy, attributed to excessive feeding with sugar beet.

—R.M.

PIANA, G. (1953). Ripercussioni sull'apparato riproduttore dei bovini e sulla lattazione di mangimi in fase di irrancidimento. **[Effect of a diet containing rancid fats on the genital system of bull calves and on the lactating cow.]**—*Atti Soc. ital. Sci. vet., Sanremo,* 1952. **6,** pp. 110-112. [English and French summaries.] 598

In 6 bull calves fed mixed concentrates containing a high proportion of rancid fats, changes produced in the testicles were similar to those caused by vitamin E deficiency in g. pigs and rats. The same diet had apparently little effect on reproduction in 8 lactating cows, but there was reduction in the fat content of the milk.

—R.M.

RASBECH, N. O. (1953). Antibiotikas indflydelse på fruktolysen i saedfortyndinger. **[The influence of antibiotics on breakdown of fructose in diluted semen.]** — *Nord. VetMed.* **5,** 193-210. [In Danish. English and German summaries.] 599

Fructolysis, as determined by a colorimetric method, in diluted bull semen, was found to be inhibited by the following antibiotics at the minimum concentrations indicated:—penicillin 10,000 I.U./ml.; streptomycin 10,000 μg./ml. (only after 2 days); aureomycin and terramycin 500 μg./ml.; chloramphenicol 800 μg./ml.; sulphanilamide 0·3%. These tests were done on semen stored at 37°C. for 3 hours. With 8 days' storage at 5°C., fructolysis was reduced with penicillin, streptomycin, and chloramphenicol

at the above concentrations, but aureomycin, terramycin and sulphanilamide had no effect.
—F. R. Harris.

van Dieten, S. W. J. (1953). Invloed op de bevruchting door toevoeging van penicilline en streptomycine aan het verdunde sperma. [**Influence of penicillin and streptomycin in semen diluents on the fertilizing capacity of semen.**]—*Tijdschr. Diergeneesk.* **78,** 419-430. [English, French and German summaries.] **600**

Examination of 4,757 inseminations with semen from 13 bulls at an A.I. station revealed that no improvement in conception rates resulted from the use of diluted semen to which penicillin and streptomycin had been added, even when cows were served up to 4 times, or when semen up to 4 days old, or semen from a bull infected with *Pseudomonas pyocyanea* was used. The use of the antibiotics did not affect subsequent oestrus.—F. R. Harris.

Thacker, D. L. & Almquist, J. O. (1953). **Diluters for bovine semen. I. Fertility and motility of bovine spermatozoa in boiled milk.**—*J. Dairy Sci.* **36,** 173-180. **601**

By use of the split sample technique, the fertility of bovine semen diluted with boiled homogenized milk was compared with that of semen diluted with an equal quantity of egg yolk-citrate containing penicillin and streptomycin. The 60-90 day non-returns averaged 72·7% for 2,381 first service cows with the boiled milk diluent, and 71·4% for 2,620 animals with which the egg yolk-citrate diluent was used. From the results, it was concluded that both were suitable diluents for bovine semen.—A.S.

Hurst, V. (1953). **Dilution of bull semen with frozen egg yolk-sodium citrate.**—*J. Dairy Sci.* **36,** 181-184. **602**

When egg yolk-sodium citrate diluent, which had been frozen for one month at −15°C., was tested against freshly prepared diluent there was no significant difference in conception rates for 1,558 first services.
—Ian Newsam.

Rottensten, K. (1952). I. Sammenlignende forsøg med fortynding af saeden 1:8 og 1:16. II. Befrugtningsevnen af frisk saed i sammenligning med daggammel. [**I. Comparison of semen diluted 1 : 8 and 1 : 16. II. Potency of fresh semen and of semen one day old.**]—*Beretn. Forsøgslab. Kbh.* No. 261. pp. 32. [English summary.] **603**

I. A comparison of semen diluted 1:8 and 1:16 with a diluent including sulphanilamide, gelatin and 20% egg-yolk in some 12,280 inseminations, giving 56·4 and 54·8% diagnosed pregnancies after first inseminations respectively. The difference between the results was statistically significant, and lower dilution rates seem to be more suitable in the case of gelatinized semen.

II. Comparison of the potency of fresh and one-day-old gelatinized semen in some 13,805 inseminations over 3 winter periods showed a slightly higher conception rate with fresh semen, and in 2 summer periods showed a somewhat greater difference presumably attributable to faulty refrigerative technique. Individual variations between the 15 bulls studied could probably be explained by chance.
—R. B. Holcombe.

Kampschmidt, R. F., Mayer, D. T. & Herman, H. A. (1953). **Viability of bull spermatozoa as influenced by various sugars and electrolytes in the storage medium.**—*Res. Bull. Mo. agric. Exp. Sta.* No. 519. pp. 20. [Authors' summary modified.] **604**

In a study of the physical, chemical and physiological requirements of mammalian spermatozoa during a prolonged period of storage at low temperatures, semen from 12 different bulls of the Jersey, Holstein and Guernsey breeds was used.

When osmotic balance was maintained by a proportionate increase of glucose, it was observed that as the quantity of buffer salt, $Na_2CO_3$, was reduced there was a concomitant increase in the survival of spermatozoa during the storage period. However, if the buffer salt concentration is lowered below the minimum amount necessary to maintain the pH level during a storage period, the survival of these cells is detrimentally affected. Therefore, an optimum concentration of buffer salts is necessary for maximal storage results. Similarly, an optimum quantity of a metabolizable sugar was necessary in the diluting medium. In order to meet the osmotic requirements, either glucose or some non-metabolizable sugar may be utilized in addition to the buffer salts and metabolizable sugar. The diluting medium must include a source of certain storage factors found in egg yolk, boiled milk, or chick embryo.

Ullner, W. (1953). Vergleichende Untersuchungen von Spermaverdünnern. [**Comparison of semen diluents.**] — *Tierärztl. Umsch.* **8,** 275-277. **605**

On the basis of saline resistance tests the author recommended " dilopten " (a buffered organic phosphatide-glucose-citrate mixture) as

a semen diluent for periods up to 7 days, but the experiments showed little advantage over egg yolk-citrate or " spermasol " (a buffered gelatin-citrate)—egg yolk. No diluent examined affected the sperm death rate.—J. E. Smith.

Melrose, D. R. & Terner, C. (1953). **The metabolism of pyruvate in bull spermatozoa.** —*Biochem. J.* 53, 296-305. 606

The effect of fluoride, 2:4 dinitrophenol (DNP), fructose, pyruvate and lactate on the metabolism of washed bull spermatozoa is described.

There appeared to be a significant correlation between the respiratory response to pyruvate + DNP and pyruvate alone of 60 bull semen samples examined in the presence of fluoride, and the fertility of their 16 donors. Bulls with the best fertility records gave the highest proportion of samples showing a small response to pyruvate alone in relation to their response to pyruvate + DNP.—W. H. Parr.

Rothschild. (1953). **A new method of measuring the activity of spermatozoa.**—*J. exp. Biol.* 30, 178-199. 607

R. assayed a quantitative method of estimating the mean speed of movement of spermatozoa in suspension. A drop of bull semen diluted in phosphate buffer solution is placed on a covered slide and a rectangle $337 \times 225\mu$ is photographed with a cinematograph camera for 20·2 sec. at 25·8 frames/sec. A count of spermatozoa in each frame is made and the mean speed of their movement, estimated at $123\mu$/sec., is obtained by drawing a line between the consecutive positions of each spermatozoon head. The phenomenon of probability-after-effect and the principle of kinetic theory were applied; this enabled the standard error and estimate of speed to be kept under control. This method could be applied to any system of organisms moving in random directions in one, two or three dimensions. Graphs and tables were given.—F.A.A.

Kirby, A. (1953). **Observations on the blood supply of the bull testis.**—*Brit. vet. J.* 109, 464-672. [Abst. from author's summary.] 608

An account of a study of the vascular supply of the testis of the bull (*Bos taurus* and *B. indicus*) made by dissection and arteriography of a series of 21 testes. K. gave an account of the branches arising from the convoluted portion of the testicular artery, with mention of the occasional branch from the artery during its course down the posterior aspect of the testis. He described the mode of division of the testicular artery, its pattern within the testis, and the venous drainage. He gave an account of the blood supply to the epididymis and vas deferens, and mentioned the anastomotic connexions between deferential, epididymal and testicular arteries.

Kurbatoff, A. D. (1951). [**Alterations in heredity and increase in viability of progeny by means of inter-breed transplantation of fertilized ova in rabbits.**]—*Adv. mod. Biol., Moscow.* 31, 300-314. [In Russian.] 609

K. studied the influence exerted by the maternal organism on its hybrid issue by transplanting fertilized ova into " carrier " rabbit does of a different breed. Thirty-six does of the 5 breeds used were mated with a buck, in most cases of their own breed, and within 24–30 hours some of the ova from each doe were transplanted into a doe of a different breed. Seventy-two " transplanted " young were born with 145 natural ones, the latter being used as controls, and the mixed litters as born being reared together.

The weight at birth of the " transplants " was greater than either that of their blood brethren left in the original uterus, or that of their actual litter-mates which were, of course, of another breed. In cases where the absolute weight was less, it was computed to be greater when the smaller size of the " carrier " doe as compared with the original doe was taken into account. Apart from this, the colour and texture of the coat in 6 of the 72 was said to be similar to that of their " carrier " mothers. It was suggested that both the phenomena observed were accounted for by assimilation of " alien " substances. The benefit derived from this assimilation was particularly apparent in cases where the original parents of " transplants " were of close blood relation (inbred) and had lost some of their vigour. Details were given in seven tables.—F.A.A.

Austin, C. R. (1953). **The growth of knowledge on mammalian fertilization.**—*Aust. vet. J.* 29, 191-198. 610

The author reviewed the development of knowledge on the process of fertilization from the work of Leeuwenhoek and de Graaf in 1677-78 to the foundation and elaboration of the modern concepts from 1870-1952.

—A. W. H. Braden.

Reynolds, S. R. M. (1953). A source of **amniotic fluid in the lamb: the naso-pharyngeal and buccal cavities.** [Correspondence.] —*Nature, Lond.* 172, 307-308. 611

Secretions of the naso-pharyngeal and

buccal cavities in the foetal lamb are a source of amniotic fluid in the latter part of gestation.
—R. A. Huck.

Marden, W. G. R. (1953). **The hormone control of ovulation in the calf.**—*J. agric. Sci.* **43**, 381-406. [Author's summary modified.] **612**

Unlike many other mammals, the calf is capable of responding to pituitary injection almost from birth. Age has little effect on the ability of the follicles to develop during a series of horse pituitary extract (A.P.H.) injections, the follicular response generally being as good 3 weeks after birth as in calves 6–8 months old.

Ovulation can occur spontaneously in the A.P.H. treated calf before the end of the first month of post-natal life. Ova obtained from such ovulations are capable of fertilization, although the percentage becoming fertilized is very low. This is thought to be due to the infantile state of the Fallopian tube and the difficulty of inseminating into the uterus, rather than to faulty maturation of ova.

Although many follicles (10–60) can develop during a series of A.P.H. injections, superovulation was not consistently obtained either by i/v injection of A.P.H., cattle pituitary extract (L.H.) or prolan (P.U.) or combinations of any of these three.

Superovulation can generally be obtained, with the formation of many corpora lutea, if a second A.P.H. treatment is given after a period of luteal activity.

The inhibitory effect of a corpus luteum on ovulation in cattle can be overridden in the A.P.H. treated animal if suitable quantities of A.P.H., L.H. or P.U. are intravenously injected when the newly formed follicles are approaching maturity.

Ovulation in the calf at all ages up to 8 or 9 months of age either in the presence or absence of luteal tissue is unaccompanied by oestrus. Oestrus, when occurring during a series of A.P.H. injections commenced after 90-100 hours of treatment. In such cases slaughter has always revealed the presence of luteal tissue, indicating that ovulation during a ' silent heat ' had occurred before the commencement of pituitary treatment.

Great individual variation exists in the ability of the ovary to respond to pituitary injections. This insensitivity to gonadotrophins is not confined to young calves and has been observed in calves 4–6 months of age.

Márkus, J. (1953). **The effect of synthetic estrogen preparations on ewes during the mating season.**—*Acta vet. hung.* **3**, 113-122. [In English. Russian summary.] **613**

Of 40 ewes treated with stilboestrol dipropionate, 34 came into oestrus within 5 days, as compared with 4 of 20 untreated controls. Ultimate conception rate in the controls was 25% higher than in the treated group. Two hundred ewe lambs treated at 7–8 months old had a subsequent mating rate similar to that of 50 controls.—C. C. Bannatyne.

Rasbech, N. O. (1953). Undersøgelser over anvendelsen af afrodisiaca til gylte og søer. Brunstfremkaldende virkning og kuldstørrelse hos 1.655 behandlede dyr. [**Effects of the use of sex hormones in gilts and sows. Size of litter in 1,655 treated animals.**]—*Nord. Vet Med.* **5**, 131-148. [In Danish. German and English summaries.] **614**

In this account of the treatment of 1,655 gilts and sows with various sex hormones no details were given of the route of administration. (1) Of 208 animals given 250 I.U. of chorionic gonadotrophin 84·6% came into oestrus and were served, 56·8% became pregnant, and the average litter size was 9·1. Of 217 given 500 I.U., 86·6% came into oestrus, 58% became pregnant, litters averaged 9·7. (2) Of 170 animals given 400–800 I.U. of chorionic gonadotrophin combined 1 : 1 with pregnant mare's serum, 95·8% came into oestrus, with 82·2% pregnancies and an average litter of 9·9. (3) Of 242 animals given 10,000 I.U. of natural oestrogen, 84·2% came into oestrus, 66·2% became pregnant and the average litter was 8·1. Of 63 given 25,000 I.U., 81·7% came into oestrus, with 71·1% pregnancies and an average litter of 8·5. (4) Of 147 animals given 10,000 I.U. of natural oestrogen combined with 300 I.U. of pregnant mare's serum, 93·1% came into oestrus, 79·5% became pregnant and the average litter was 10·2. (5) The corresponding data for 362 animals treated with stilboestrol, 5–30 mg., were 65·4%, 38·3% and 6·2 respectively. Of the 237 (65·4%) which came into oestrus and were served following treatment, 72 had irregular oestrus thereafter and 65 had no further signs of oestrus. This occurred more often when doses of 15–30 mg. were given. Stilboestrol was therefore contra-indicated. (6) Vitamin $D_2$ and tincture of cantharides were tried in other groups of pigs, but gave unsatisfactory results.—F.E.W.

de Nordis, S. & Sartoni, E. (1953). Effetti sulla sfera genitale di ratte impuberi indotti dalla prostigmina associata e no a hemoantin Richter. [**Effect of physostigmine, with and**

**without chorionic gonadotrophin, on the genital system of rats.**]—*Nuova Vet.* 29, 192-198. 615

While 0·00075 mg. doses of physostigmine produced little effect on the genital organs of immature rats, the same drug given in association with gonadotrophin markedly increased the congestive effects produced by the latter alone.
—F. R. Harris.

Dirnagl, O. (1951). Die Wirkung von Testosteron auf Fortpflanzung, Fruchtbarkeit und Geschlechtsverhältnis beim weiblichen Goldhamster. [**Effect of testosterone on reproduction and fertility in the female golden hamster.**]—*Inaug. Diss., Munich.* pp. 19. 616

Testosterone, in doses of 20 and 30 μg. apparently stimulated the hypophysis since conception rate and size of litter were favourably affected. Doses of over 40 μg. were in some cases harmful, causing sterility.
—Rachel Marshall.

Swyer, G. I. M. (1953). **Effects of testosterone implants in men with defective spermatogenesis.**—*Brit. med. J.* Nov. 14th, 1080-1081. [Author's summary copied *verbatim.*] 617

The effect of implanting two and three pellets of testosterone subcutaneously has been studied in 56 men presenting seminal deficiencies of one kind or another. These men received a total of 67 implants—28 of 200 mg. and 39 of 300 mg. The seminal fluid appeared to improve in 28 individuals (12 received 200 mg., 16 received 300 mg.); to be unchanged in 22 men; and to deteriorate in 6 others (1 received 200 mg., 5 received 300 mg.). No significant overall effects on volume and seminal morphology were seen, but there was a highly significant overall increase in motility with both doses of testosterone and in density with 300-mg. implants. Extreme asthenospermia and extreme oligospermia were invariably unaffected by the treatment.

The wives of 20 of the men became pregnant on 22 occasions, all within six months of implantation; 5 pregnancies ended in abortion (22·75%), the remainder going the term.

It is suggested that moderate depression of sperm density (15–20 millions per ml.) or poor motility (other than extreme asthenospermia) with fair or good density offers the best chances of improvement after testosterone implantation.

Reynolds, M. (1953). **Measurement of bovine plasma and blood volume during pregnancy and lactation.**—*Amer. J. Physiol.* 175, 118-122. [Abst. from author's summary.] 618

Plasma volumes were measured and blood volumes estimated from corrected haematocrit readings on 20 cows at various stages of a first pregnancy and on 7 cows at various stages of a first lactation. The results indicated that during gestation there is an increase in plasma and blood volume which, in the primiparous cow, is attributable in part to the animals' maturing growth, and in part to gestational processes. During lactation the increased volumes are maintained. No anaemia developed during pregnancy or lactation, the haematocrit values remaining in or near the control range.

Wolfsteller, W. (1952). Modificaciones fisiológicas del epitelio vaginal de la vaca. [**Physiology of the vaginal epithelium in the cow.**]—*Gac. vet., B. Aires.* 14, 66-72. 619

A study of the variations in the epithelial cytology of the genital tract during the phases of the oestrous cycle. No new knowledge.
—I. W. Jennings.

van Klinkenberg, G. A. (1953). **Extremely high alkaline phosphatase activity in the vaginal mucus of the cow.** [Correspondence.]—*Nature, Lond.* 172, 397. 620

Extremely high alkaline phosphatase activity in the vaginal mucus of cows was observed two days before heat, with a second high period 8 to 12 days *post oestrum.*—F. R. Harris.

Glover, F. A. (1953). **Ultra-violet absorption spectra and flow birefringence of bovine cervical secretions.** [Correspondence.]—*Nature, Lond.* 172, 255. 621

The U.V. absorption spectrum of diluted cervical mucus differed at (a) oestrus, (b) dioestrus and (c) pregnancy. Progesterone-oestrogen treatment simulated oestrus or dioestrus according to dosage and administration. During pregnancy and dioestrous the samples showed flow birefringence.—J. E. Smith.

Erichsen, S. (1953). **Histochemical changes in the endometrium of the dog during the oestrous cycle.**—*Acta path. microbiol. scand.* 33, 263-267. [In English. Author's summary modified.] 622

In the endometrium of the bitch there occurs a periodic acid-Schiff positive substance which is either a neutral mucopolysaccharide or a muco-glucoprotein. The substance is probably secreted by the epithelium of the glands and crypts when the endometrium passes from the prooestrus-oestrus to the progressive met-oestrus. Fatty degeneration of the surface and crypt epithelium occurs during the regressive

metoestrus. Similar changes, but of a moderate degree, are also found in the epithelium of the glands during this stage.

THOMSON, A. P. D. & ZUCKERMAN, S. (1953). **Functional relations of the adenohypophysis and hypothalamus.** [Correspondence.] — *Nature, Lond.* **171,** 970. 623

Artificial illumination induced two ferrets to breed in the winter, despite permanent obliteration of the pituitary stalk. The problem remains of how the impulse reaches the pituitary from the retina.—J. E. SMITH.

MAQSOOD, M. (1951). **Thyroid functions in relation to maturity and fertility in the male.**— *Proc. Soc. Stud. Fertil.* No. III. Cambridge Conference 1951. pp. 33-39. 624

A review of the effect of thyroxine on the sexual development and reproductive performance of male animals.—W. H. PARR.

LAGERLÖF, N. & BOYD, H. (1952). **Post-mortem examination of the sexual organs of 6,286 cows of the Swedish Highland breed, with special reference to ovarian hypoplasia.** —*Rep. IInd Int. Congr. Physiol. anim. Reprod., Copenhagen,* 1952. **2,** 164-174. [In English. French and German summaries.] 625

Gonadal hypoplasia is seen most often in the left ovary and in 7·2% of cattle examined this overy was totally hypoplastic. Material from 275 pregnant cows showed that 62·9% had been pregnant in the right horn.

—IAN NEWSAM.

KIDWELL, J. F., VERNON, E. H., CROWN, R. M. & SINGLETARY, C. B. (1952). **Muscular hypertrophy in cattle.**—*J. Hered.* **43,** 63-68. 626

Cattle in which there is muscular hypertrophy of the loins and thighs are also known as " double muscled " or " Doppellender ". The authors described the occurrence of this condition in a herd of Africander-Aberdeen Angus cross-bred cattle, and reviewed the literature. There are photographs of affected cattle and affected carcasses. The authors concluded that the condition was inherited as an incomplete recessive gene.—R.M.

MAGLIANO, A. (1953). Etudes comparatives sur la composition des os de bovins a " cul de poulain " (Doppellender) et ceux des bovins normaux du Piemont. [**Composition of bones of " Doppellender " calves.**]—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 578-580. [In French. English and German summaries.] 627

M. examined the strength and mineral composition of the bones of " Doppellender " calves [see preceding abst.] from the Piedmont region, which are known to be particularly prone to develop rickets.

He found that in these calves, which grow very rapidly, there is a disturbance of the normal balance between bone growth and the deposition of mineral salts, leading to a pronounced weakening of the bones.—A.S.

IDVALL, S. (1952). Ett markant fall av missbildningar inom stora vita engelska rasen. [**A striking instance of abnormalities in the Large White breed of pigs.**]— *Svenska Svinavelsfören. Tidskr.* No. **4.** pp. 67-70. 628

Various abnormalities, including underdevelopment of the lower jaw, fixed tongue, crooked and otherwise deformed hind limbs in piglets of the English Large White breed were traced back to two sires. The author gave an elementary explanation of the genetics involved.

—R. B. HOLCOMBE.

WELLMANN, G. (1953). Beobachtungen über die Bauchflechte (Pityriasis rosea) der Ferkel und die Erblichkeit der Disposition dazu. [**Hereditary aspects of pityriasis rosea (a ringworm-like condition) of piglets.**] — *Tierärztl. Umsch.* **8,** 292-294. 629

Pityriasis rosea was seen only in the offspring of sows belonging to an in-bred line. Attempts at transmission by contact failed. W. concluded that a predisposition to the condition is probably hereditary.—H. BEHRENS.

LIENHART, R. (1953). Inversion sexuelle temporaire, lors de la puberté, chez la femelle du pigeon domestique; hérédité de cette anomalie. [**Temporary sexual inversion in pigeons; an inherited anomaly.**]—*C. R. Soc. biol. Paris.* **147,** 472-474. 630

Temporary sexual inversion has been observed in young mature female pigeons. L. discussed the possible mechanisms involved. Inbreeding and selection increased the frequency of the appearance of this anomaly.

—D. LUKE.

*See also abstr.* **318** (*V. fetus* infection); **354** (*L. pomona* from aborted swine foetuses); **538** (effect of methylthiouracil on spermatogenesis in rams); **656** (report, Dutch Committee for artificial insemination).

## ZOOTECHNY

BRUYÈRE, P. (1953). De l'adaptation des bovins aux climats chauds. [**Acclimatization of cattle to hot climates.**]—*Ann. Méd. vét.* **97,** 205-243. 631

A lengthy review on the subject, with no new material.—J.D.

BIANCA, W. (1953). Einige physiologische Reaktionen des Rindes auf atmosphärische Hitze. [**Some physiological reactions of cattle to atmospheric heat.**]—*Schweiz. Arch. Tierheilk.* **95,** 451-458. [English, French and Italian summaries.] 632

Two calves were exposed to an artificially produced hot, damp climate for two and a half hours in each of 5 experiments. B. studied the changes in heart frequency, rectal temperature, and dry matter and haemoglobin content of the blood. The work was carried out at the Hannah Dairy Research Institute, Scotland.—R.M.

JOSHI, N. R. & PHILLIPS, R. W. (1953). **Zebu cattle of India and Pakistan.**—*F.A.O. Agric. Studies.* No. 19. pp. 256. 633

In the preface, attention is called to the frequent failures that follow indiscriminate attempts to import " improved " breeds of livestock to areas unsuited for them. The zebus of India and Pakistan have evolved, rather than been bred, into animals best suited for a particular locality and method of management. In this publication many breeds of zebu, somewhat arbitrarily divided into 6 groups, are briefly described, with notes on their live weight at different ages, milk and butter output and working capabilities, and some account of the climate and vegetation of their native home and of the method of management of each is included, often with a short note on their performance when exported to other areas. Thus anyone intending a large-scale importation of these animals can form some idea of their chances of surviving and thriving in their new environment. The book is excellently illustrated throughout. It is intended to produce similar books dealing with other countries and other animals and they should fill a long-felt want.

—R. MACGREGOR.

RENHERT, O. (1952). Ursachen und Verhütung der Transportverluste bei Schlachttieren mit besonderer Berücksichtigung von Transportmitteln, Versicherung und gesetzlichen Anordnungen. [**Causes and prevention of losses in animals transported for slaughter.**]—*Inaug. Diss., Munich.* pp. 86. 634

R. outlined the German regulations concerning the transportation of animals by different types of transport, and discussed methods of dealing with animals in transit to abattoirs whereby loss and injury might be lessened.—S. E. FOX.

COLE, T. W. (1953). **Maintaining the health of livestock in transit.**—*Leafl. U.S. Dep. Agric.* No. 38. pp. 8. 635

Careful loading, carriage and unloading are essential to maintain slaughter animals in good condition. C. gave details of the feed required by the 28-Hour law to be provided for such animals in the U.S.A.—S. E. FOX.

SUTISNO, R. (1952). **About some arrangements and prescriptions in the Islam, referring to cattle, slaughtering of cattle, and the use of foodstuffs of animal origin.**—*Hemera Zoa.* **59,** 26-53. [In English. Indonesian summary.] 636

S. summarized briefly the main concepts of the creeds of the different sects of Islam, and gave some [but by no means all] of the rules governing the slaughter of animals for meat, endeavouring, when possible, to reconcile these with modern standards of hygiene and humane treatment. It is of interest that he approves of electric stunning, but not of stunning by a blow or shot.—R. MACGREGOR.

ANON. (1953). **Calf rearing and diseases of calves.**—*Bull. Minist. Agric., Lond.* pp. 28. London: H.M. Stat. Off. 1s. 3d. 637

An excellent guide to the housing, management and feeding of calves. Treatment and prevention of calf diseases and the rearing of disease-free calves are dealt with briefly.

—R. A. HUCK.

TAYLER, J. C. (1953). **The grazing behaviour of bullocks under two methods of management.**—*Brit. J. anim. Behav.* **1,** 72-77. 638

Bullocks confined to paddocks of from 1 to 3 acres under a rotational grazing system exhibited periods of herd grazing alternating with periods spent idling or chewing the cud, either standing or lying down. The first grazing period began near sunrise and was normally longer and more intensive than succeeding periods. A further prolonged and intensive period occurred during the 3–4 hours before darkness fell. From April to July, 93% of total grazing time (6–8 hours daily) was in daylight. Chewing the cud ($5\frac{1}{2}$–$9\frac{1}{2}$ hours daily) occupied much of the hours of darkness. Individual

beasts walked from ½ to 2 miles daily, mostly while grazing. Disturbance by gad-flies was found to alter grazing times.

Similar animals grazing under the " strip " system showed a different pattern, the main morning grazing period being delayed until the fence had been moved. During grassland studies it is important to weigh the animals at a correct time daily in relation to the " fill " of grass and this is now based on behaviour studies. The appraisal of palatability and the devising of a system of management that would reduce unnecessary expenditure of energy by bullocks to a minimum may likewise be facilitated by observations on grazing behaviour.

—Alastair N. Worden.

Hancock, J. (1953). **Grazing behaviour of cattle.**—*Anim. Breed. Abstr.* **21**, 1-13. **639**

A review. Times spent in grazing, ruminating, idling, resting and lying down are analysed in relation to weather, light and nature of pasture. Distances walked and numbers of excretions and drinks are tabulated. The factors governing selective grazing are discussed. 33 references.—C. C. Bannatyne.

## TECHNIQUE AND APPARATUS

Johnstone, K. I. (1953). **Micromanipulation on an agar surface for the isolation and cultivation of single organisms.**—*J. gen. Microbiol.* **9**, 293-304. [Author's summary copied *verbatim*.] **640**

Organisms may readily be isolated and cultured separately by micromanipulation on the upper surface of an agar block. A micromanipulator is not essential, its place being taken by a second microscope with simple attachments. Illumination methods by dark-ground and phase-contrast techniques are described. A modification using a simple micromanipulator enables isolations to be made very rapidly. A device is described for making the necessary micro-instruments in a standard microscope.

Ando, K. & Shimojo, H. (1953). **Stable suspensions for Vi-agglutination tests.**—*Bull. World Hlth Org.* **9**, 575-577. [French summary. Authors' summary modified.] **641**

The authors discussed two methods of preparing a stable suspension for Vi-agglutination tests. Both maintain Vi-agglutinability and O-inagglutinability after storage at 37°C. for 6 months, and the second also maintains the Vi-capsule-staining property. The first method involves the addition of 0·5% $CaCl_2$ to a heavy saline Vi-suspension, while in the second a similar suspension is treated with a 0·2% solution of chrome alum.

Brandt, F. A. (1953). **Whole lung sections: dry ice technique.**—*S. Afr. med. J.* **27**, 142-144. **642**

An account of a method whereby, after fixation and alcohol treatment to preserve the coloration, the lung is embedded in gelatin, frozen, sectioned and mounted on photographic paper in which the gelatin-section becomes embedded.—A. Seaman.

## MISCELLANEOUS

I. Clarke, E. G. C. (1953). **Discussion on metals and synthetic materials in relation to tissues. *In vitro* aspects of metallic corrosion in tissue fluid.**—*Proc. R. Soc. Med.* **46**, 641-644. **643**

II. Hickman, J. (1953). **Experimental observations with metals in the bones of dogs.**—*Ibid.* 644-646. **644**

III. Collins, D. H. (1953). **Structural changes around metallic and plastic appliances in human bones.**—*Ibid.* 646-647. **645**

IV. Scales, J. T. (1953). **Tissue reactions to synthetic materials.**—*Ibid.* 647-652. **646**

I. Only three metals—tantalum, which is expensive, vitallium, which is difficult to work, and stainless steels—have found general application in surgery. Not all stainless steels are inert, but among the very large number of alloys known some may be more suitable than the metals now employed. Prior to animal experiment the behaviour of metals in tissues can be assessed by constructing an electrolytic cell containing serum and electrodes of the metal under test and measuring the back electromotive force (potential) due to the reaction between the anions present and the anode. Inert metals have high positive potentials while those which corrode easily have high negative potentials.

Details of some 80 metals examined by this method are to be published.

II. From radiological and weight loss observations on implants of 8 metals into the femur and tibia of dogs, Clarke's *in vitro* electrical measurement of metal inertness appeared to correlate with the behaviour of the metal *in vivo*.

III. C. had observed a series of changes around stainless steel Smith Petersen nails and methyl-methacrylate head prostheses in the femur in human beings which ultimately led to sequestration from the internal structure of the bone.

IV. Before a plastic is used in surgery, its chemical composition should be known as various additives and contaminants may be present in synthetic materials and produce a tissue reaction although the resin itself is inert. A knowledge of the surface hardness and abrasive resistance is also necessary as fine particles abrased from a plastic by mechanical friction may produce an intense tissue reaction although a rod of the plastic may be inert. Non-porous inert metal becomes invested by a fibrous tissue capsule, but micro-porous material can be invaded by fibrous tissue and become incorporated into the tissue.—A. ACKROYD.

MATERA, E. A. (1952). Prostatectomia pela via perineal no cão. **[Prostatectomy by the perineal route in dogs.]**—*Thesis, São Paulo.* pp. 101. 647

M. described in detail the operation of prostatectomy in dogs by the perineal route and recommended it for ease in operation, simplicity in drainage, absence of shock and relative absence of complications. Results in the 20 cases reported were stated to be satisfactory.
—I. W. JENNINGS.

GLEISER, C. A. (1953). **The determination of the lethal dose 50/30 of total body X-irradiation for dogs.**—*Amer. J. vet. Res.* **14,** 284-286. [Author's summary modified.] 648

Using a 1,000 kv. X-ray generator, groups of dogs of the Walker Foxhound variety were exposed to doses of bilateral total body irradiation varying from 3,000 to 200 r. The 50% lethal dose for 30 days ($LD_{50/30}$) was found to be 315·6 r.

## REPORTS

GREAT BRITAIN. (1952). **The Lister Institute of Preventive Medicine. Report of the Governing Body, 1952.** [DRURY, A. N.] pp. 19. London: The Institute. 649

The report summarised the research work carried out during the year, most of which, however, was of general medical interest. Work on TRICHOMONIASIS was continued. The effect of A.C.T.H., cortisone, sphingomyelin, acetylsphingosine and the synthetic antihistamine phenergan in inhibiting the skin reaction in cattle sensitized to trichomonas antigen was investigated. The changes in the serum proteins following active immunization with *Trichomonas foetus* during the period immediately before parturition and upon the subsequent calving were also being studied.

A list of publications from the Laboratories was given, four of these being of special veterinary interest.—D. S. RABAGLIATI.

GREAT BRITAIN. (1953). **The Lister Institute of Preventive Medicine. Report of the Governing Body, 1953.** [DALE, H. H.] pp. 14. London: The Institute. 650

Research included the study of *Haemophilus pertussis* antigens. Sheep r.b.c. contain a growth stimulant for Phase 1 cells growing from small inocula in Cohen's medium, and sheep serum, an essential growth factor for large inocula growing on Cohen's medium solidified by agar.

An account was given of a study of the active and passive sensitization of the uterus of the cow by *Trichomonas foetus* antigen.

Publications from the Laboratories were listed.—D. S. RABAGLIATI.

INDIA. (1951). **Administration report of the Madras Animal Husbandry Department for the year 1949-50.** pp. 56. Madras: Govt. Press. 12 annas. 651

The name of the Serum Institute was changed to " Veterinary Biological and Research Institute ". During the year, 1,356,780 doses of anti-RINDERPEST serum, 659,400 doses of goat-adapted RINDERPEST virus, 672,660 doses of HAEMORRHAGIC SEPTICAEMIA vaccine, 719,300 doses of BLACKLEG vaccine and small quantities of FOWL CHOLERA serum and vaccine, FOWL POX vaccine, BOVINE LYMPHANGITIS vaccine and SHEEP POX vaccine were manufactured.

There were 144 Veterinary Institutions in the State and at these 352,898 animals were treated. Among contagious diseases, RINDERPEST took a heavy toll, but was restricted to a narrow belt adjoining the neighbouring States. With the help of 4 mobile vans and 8 Veterinary Assistant Surgeons, the Special Officer appointed to carry out mass protection of cattle against RINDERPEST visited 1,471 villages and immunized 156,000 cattle. Immunization of cattle against other diseases was carried out by the itinerant staff.—C. SEETHARAMAN.

INDIA. (1950). **Himachal Pradesh. Annual report of the Civil Veterinary Department**

**[Animal Husbandry Department] for the year 1949-50.** [SAINI, J. N.] pp. 5. [Mimeographed.] 652

This is the first annual report of the Department, which was established during the year. The staff consisted of the Animal Husbandry Officer, who was in charge of the Department, 10 Veterinary Assistant Surgeons, 11 Veterinary Stock Assistants, and 6 Compounders. Six veterinary dispensaries were opened. Two hundred and fifty-three outbreaks of RINDERPEST were reported and 39,426 cattle were immunized against RINDERPEST. The various centres treated 63,593 animals.

—C. SEETHARAMAN.

INDIA. (1951). **Himachal Pradesh. Annual report of the Animal Husbandry Department for 1950-51.** [SAINI, J. N.] pp. 9. [Mimeographed.] 653

An all-round improvement in the activities of the Department is recorded. Twenty-six outbreaks of RINDERPEST and a few of HAEMORRHAGIC SEPTICAEMIA were reported; 8,872 cattle were immunized against RINDERPEST and 2,153 against HAEMORRHAGIC SEPTICAEMIA. The various veterinary institutions treated 67,441 animals. Three breeding bulls were distributed to upgrade the local stock. Four cattle shows were held and veterinary propaganda work was carried out.—C. SEETHARAMAN.

SOMALILAND PROTECTORATE. (1951). **Annual report of the Department of Agriculture and Veterinary Services for 1950.** pp. 29 [Mimeographed.] 654

An inoculation programme has been begun with the Kabete strain of goat-adapted virus against RINDERPEST and with an Australian vaccine against BOVINE CONTAGIOUS PLEURO-PNEUMONIA.—W. S. MARSHALL.

ALGERIA. (1952). Rapport du Conseil de l'Expérimentation et des Recherches Agronomiques pour 1951-1952. **[Report of the Council for Experimental Agriculture and Research, Algeria.]** [BARBUT, M.] pp. 288. Algiers: Imprimerie Officielle. [Items of veterinary interest pp. 179-207.] 655

Investigation was carried out in a number of fields: the effect of coloured light on the pituitary mechanism of lactation: the diagnosis of pregnancy in cattle by various means: the effect of iodinated casein on the growth of piglets: the crossing of Merino with indigenous Ouled-Djellal sheep: the study of the various types of fleece met with in the territory—to be followed by a breeding plan designed to eliminate those which are below standard: the comparative values of various kinds of forage at different stages of growth: the advantages and drawbacks of various methods of producing silage—vine shoots ensiled with a fungicidal agent provided a good fodder lasting for at least 7 months.—A.S.

THE NETHERLANDS. (1953). Jaarverslag 1952 van de Centrale Commissie van toezicht op de uitvoering van de kunstmatige inseminatie. Waarin opgenomen een verslag van de werkzaamheden van de Federatie K.I. **[Netherlands. Annual Report for 1952 of the Central Committee for the control of artificial insemination in the Netherlands.]** pp. 69. Utrecht: Secretariaat van de Centrale Cie K.I. en van de Federatie K.I.: Stationsstraat 23, Utrecht. [English, French and German summaries.] 656

In 1952 the total number of inseminated cattle in Holland was 66,779, representing 38% of the herds. The average conception rate to first inseminations rose from 53% in 1951 to 56% in 1952, the ultimate conception rate from 87% to 89%. All the offspring of bulls used for artificial insemination are registered in order to prevent too close inbreeding. For progeny testing of the bulls the first hundred calves born during the year are taken for further observation. It is planned to inspect these animals every year for conformation, production, constitution, fertility, calving etc. Causes of death and reasons for sale are recorded. Of approx. 800 bulls used in 1952 about 14% were born before 1947. About 50 were condemned because of insufficient conception rate. Details were given of the Regulations for A.I., 1953 based on the Law on agricultural production, and of the Instruction for Inseminators based on these regulations.—C. A. VAN DORSSEN.

## BOOK REVIEWS

BIESTER, H. E. [Professor of Veterinary Research, Veterinary Research Institute, Iowa State College] & SCHWARTE, L. H. [Professor of Veterinary Research, Iowa State College]. [Edited by.] (1952). **Diseases of poultry.** pp. xiii + 1245. Ames, Iowa: The Iowa State College Press. 3rd Edit. $11.50. 657

This is a revised and enlarged edition of a book which is well established as the outstanding textbook on the diseases of poultry.

The general arrangement and treatment of subjects remains as in previous editions. The chapter on Newcastle disease has been completely rewritten and contains a greatly extended list of references. Other chapters, particularly those dealing with respiratory diseases, have been expanded.

Consideration has been given to recently published papers, but in some chapters there are notable omissions in this respect. The geographical distribution of the various diseases is not well covered. Thus there is no mention of the occurrence of fowl typhoid, infectious laryngotracheitis and infectious bronchitis in Britain. The statements that Newcastle disease " is now present in every poultry producing area of the world " and that *Plasmodium gallinaceum* has only once been found in domestic chickens, and that in Egypt, are quite inaccurate.

The diseases of waterfowl have been given rather more consideration than in previous editions with the inclusion of a chapter on duck virus hepatitis. It is to be hoped that in future editions the editors will see their way to include a special section on waterfowl.

There is no doubt that this book will continue to be the stand-by of those concerned with the disease of poultry whether it be in the field, laboratory or classroom.

—F. D. Asplin.

Gray, C. H. [Professor of Chemical Pathology in the University of London.] (1953). **The bile pigments.** pp. xv + 142. London: Methuen & Co. Ltd. New York: John Wiley & Sons, Inc. 9s. 6d. **658**

The objective of this monograph is to provide a readable, useful and brief account of the bile pigments. This it successfully accomplishes.

The early chapters deal briefly but adequately with the structure and chemical and physical properties of these compounds, followed by an account of what is known of their origin and fate, particularly in relation to man. Species differences are mentioned only very briefly in a final chapter devoted to some of the problems which require further investigation. Three appendixes give details for the preparation, detection and determination of the more important pigments. The text is supplemented by a useful bibliography.

It is unfortunate that the author should have chosen to perpetuate the use of ' trivial ' names in a work of such general interest. He does so on the grounds that reference to earlier papers is thereby simplified. The use of a systematic terminology, such as that developed by Lemberg, together with a list of synonyms (a desirable addition) would have been a more acceptable solution.

This little book satisfies a long-felt requirement for a concise and up-to-date introduction to a most complex subject. It will be of particular value to the student and the non-specialist.—R. J. Garner.

Fisher, R. A. [Arthur Balfour Professor of Genetics, University of Cambridge.] & Yates, F. (1953). **Statistical tables for biological, agricultural and medical research.** pp. xi + 126. Edinburgh & London: Oliver & Boyd. 4th Edit., revised and enlarged. 21s. **659**

The publication of a fourth edition of this set of tables shows both that they are in continued demand and that they are kept up to date.

The format of the book is unchanged and some new material has been added. The list of these items is as follows:—a table which provides a test for the existence of a periodic component; a set of " segmental functions " of value in mathematical genetics; tables of random permutations of ten and twenty numbers which will be helpful in the laying down of experiments; a further table of the normal integral in which the deviation from the mean of the distribution is taken as the argument.

The section on dosage mortality tests involving a natural death rate has been rewritten.

There is a list of all *errata* found in the third edition.—F. B. Leech.

Miller, W. C. [Director of the Equine Research Station of the Animal Health Trust, Newmarket.] & West, G. P. (1953). **Black's veterinary dictionary.** pp. viii + 1112. London: Adam & Charles Black. 3rd Edit. 50s. **660**

This volume represents a valiant attempt to cope with a thing that is clearly getting out of hand. A hybrid dictionary-encyclopedia is the result. By and large a successful result too.

However, the book is very obviously shackled to its past as a simple dictionary and also to past veterinary science or rather " hypo-science " and too much of the present book is devoted to things which are now no more than museum specimens. Examples of this are the many galenical medicines which one imagines were included to satisfy the demand from the " dictionary " interests (s.g. iridin, jequirity,

kino, pepo, tansy). Also over-catered for is the horse—a matter of balance of data between the domestic animals.

Another problem of scope has clearly been —shall we keep it British or make it world-wide? The former idea has been followed regarding breeds of livestock and the latter idea for diseases of livestock, understandably not very comprehensively.

There are numerous inconsistencies: " mechanical stage " is there, but not " microscope ". Carcinomata/Sarcomata with four and a half pages is dealt with at some length and many other items too briefly. No definite policy for names of drugs, free and trade, seems to have been drawn up. A few trade names are included: either none or scores ought to have appeared. The item " dyspnoea " casts a slur upon the skill of veterinarians as anaesthetists. The revolutionary impact of sulphonamide and antibiotic therapy upon the treatment of pneumonia, etc., has been almost completely missed.

No mention is made of the quaternary ammonium cationic antiseptics, nor of some other relatively recently-introduced antiseptics, which represent important advances.

These remarks are made to illustrate the opening paragraph. We are in the now familiar situation of requiring an editorial panel of experts in many fields, to bring to perfection an encyclopedia which Black's Veterinary Dictionary has really become.

It is a very nice book to handle and well printed.—J. EDWARDS.

## BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review]

BARNARD, W. G. (1953). **Elementary pathological histology.** pp. x+77. London: H. K. Lewis & Co. Ltd. 3rd Edit. 17s. 6d.

BRADLEY, S. E. [Edited by.] (1953). **Renal function. Transactions of the Fourth Conference, October 22, 23, and 24, 1952, sponsored by the Josiah Macy, Jr. Foundation, New York.** pp. 189. New York: Josiah Macy, Jr. Foundation. $3.50.

CANNON, W. B. (1953). **Bodily changes in pain, hunger, fear and rage. An account of recent researches into the function of emotional excitement.** pp. xvi+404. Boston: Charles T. Brailsford; London: Bailey Bros. & Swinfen Ltd. 2nd Edit. 32s.

CLIFTON, C. E., RAFFEL, S. & BARKER, H. A. [Edited by.] (1953). **Annual review of microbiology. Vol. VII.** pp. x+505. Stanford, Calif.: Annual Reviews, Inc. $6.00.

COOPER, M. M. (1953). **Beef production.** pp. x +234. London, Edinburgh, Paris, Melbourne, Toronto & New York: Thomas Nelson & Sons, Ltd. 12s. 6d.

CRAPLET, C. (1953). Génétique et élevage. **[Genetics and breeding.]** pp. ix+292. Paris: Vigot Frères. Fr. 1920.

CULPEPER, N. (1953). **The complete herbal.** pp. x+603. Manchester: I.C.I. (Pharmaceuticals), Ltd. New Edit. reprinted from original Edit. of 1653. 42s.

DOBBERSTEIN, J. & KOCH, T. (1953). Lehrbuch der vergleichenden Anatomie der Haustiere. Band I. Knochenlehre und Muskulatur. **[Comparative anatomy of the domestic animals. Vol. I. Bones and muscles.]** pp. viii +180. Leipzig: S. Hirzel. DM 10.80.

DONATELLI, L. & SERAFINI, U. (1952). Gli antistaminici di sintesi; farmacologia e terapia. **[Pharmacology and therapeutic use of synthetic antihistamines.]** pp. xi+300. Naples: Edizioni Scientifiche Italiane. L. 1500.

EVANG, K., GORDON, J. E. & TYLER, R. G. (1952). **Public Health Lectures. Medical Teaching Mission to Israel, September to October, 1951. Sponsored by the World Health Organization and the Unitarian Service Committee Inc.** pp. 122. Boston, Mass.: The Unitarian Service Committee Inc. $1.

GALE, E. F. & DAVIES, R. [Edited by.] (1953). **Adaptation in micro-organisms. Third Symposium of the Society for General Microbiology, held at the Royal Institution, London, April, 1953.** pp. viii+339. Cambridge: University Press. 30s.

GREEN, H. D. [Edited by.] (1953). **Shock and circulatory homeostasis. Transactions of the Second Conference, October 19, 20, and 21, 1952, Princeton, N.J. [Sponsored by the Josiah Macy, Jr. Foundation.]** pp. 275. New York: Josiah Macy, Jr. Foundation. $3.75.

HALNAN, E. T. & GARNER, F. H. (1953). **The principles and practice of feeding farm animals.** pp. viii+408. London, New York & Toronto: Longmans, Green & Co. 4th Edit., revised. 25s.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey.

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**ERRATUM**

In *V.B.* **24**, abst. 387 on p. 62, please delete the last sentence and substitute the following:—

"In control of blackhead 2-amino-5-nitrothiazole (Enheptin-T) was highly active both for prevention and in curative treatment.

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The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

## *List of Abbreviations*

A.I. — artificial insemination
ant. — anterior
A.P.F. — animal protein factor
approx. — approximately
aq. — aqueous
av. — average

B.A.L. — British anti Lewisite (2,3 dimercaptopropanol)
b.p. — boiling point

c.f. — complement fixation
clin. — clinical
coeff. — coefficient
conc. — concentration
c.s.f. — cerebrospinal fluid

diam. — diameter
dil. — dilute(d)

E.I.A. — equine infectious anaemia
equiv. — equivalent

ft. — foot (feet) [measurement only]

Hb. — haemoglobin
H.I. — haemagglutination inhibition

inj. — injection(s)
insol. — insoluble
Inst. (inst) — Institute
i/m — intramuscular(ly)
i/p — intraperitoneal(ly)
i/v — intravenous(ly)
i/d — intradermal(ly)

lab. — laboratory (-ories)

max. — maximum (-al)

N.D.V. — Newcastle disease virus
N.D. — Newcastle disease

r.b.c. — red blood corpuscles
r.e.s. — reticuloendothelial system
R.H. — relative humidity

s/c — subcutaneous(ly)
soln. — solution
suppl. — supplement(s) (-ary)
std. — standard

temp. — temperature
therap. — therapeutic

U.V. — ultra-violet

vet. — veterinary
vol. — volume

w.b.c. — white blood corpuscles
wt. — weight

/ — per (*e.g.* wt./vol.; mg./lb. body wt.)

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

**Books for Review.**

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.

**ABBREVIATIONS OF NAMES OF PUBLICATIONS**

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals published in the years* 1900-1950, 3rd Edit. (1952). London: Butterworths Scientific Publications.